PART A

IONOSPHERIC DATA

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U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

CRPL-F 180
PART A

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/AGI Committee, May 1957, a new descriptive letter was introduced:

M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

Z (1) (qualifying letter) Measurement deduced from the third magnetoionic component.
(2) (descriptive letter) Third magnetoionic component present.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N or R are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

B for fEs is counted on the low side when there is a numberical value of a higher layer characteristic; otherwise it is omitted from the median count.

S for fEs is counted on the low side at night; during the day it is omitted from the median count (beginning with data for November 1957).

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D.C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If the count is four or less, the data are considered insufficient and no median value is computed.

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

3. For all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

PREDICTED AND OBSERVED SUNSPOT NUMBERS

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number										
	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950
December		137	150*	150*	150	42	11	15	33	53	86
November		137	150*	150*	147	35	10	16	38	52	87
October		139	150*	150*	135	31	10	17	43	52	90
September		141	150*	150*	119	30	8	18	46	54	91
August		142	150*	150*	105	27	8	18	49	57	96
July		141	150*	150*	95	22	8	20	51	60	101
June		143	150*	150*	89	18	9	21	52	63	103
May		146	150*	150*	77	16	10	22	52	68	102
April		150*	150*	150*	68	13	10	24	52	74	101
March		150*	150*	150*	60	14	11	27	52	78	103
February		150*	150*	150*	53	14	12	29	51	82	103
January	136	150*	150*	150*	48	12	14	30	53	85	105

*This number is believed represesentative of solar activity at a maximum portion of the current sunspot cycle.

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1958.

Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	146	150	151	156	160	164
1957	170	172	174	181	186	188	191	194	197	200	201	200
1958	199	201	201	197	191	187	185	184	183	181	179	179
1959	177											

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 143 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:
Townsville, Australia

Meteorological Service of the Belgian Congo and Ruanda-Urundi:
Bunia, Belgian Congo
Elisabethville, Belgian Congo
Leopoldville, Belgian Congo

Universidad Mayor de San Andres:
La Paz, Bolivia

British Department of Scientific and Industrial Research, Radio Research Board:
Inverness, Scotland
Slough, England

Defence Research Board, Canada:
Churchill, Canada
Ottawa, Canada
Resolute Bay, Canada

Radio Wave Research Laboratories, National Taiwan University, Taipeh, Formosa, China:
Formosa, China

Instituto Geofisico de Los Andes Colombianos:
Bogota, Colombia

General Direction of Posts and Telegraphs, Helsinki, Finland:
Nurmijarvi, Finland

The Finnish Academy of Sciences and Letters:
Sodankyla, Finland

Ionospheric Institute, Breisach, Germany:
Freiburg, Germany

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

Geophysical and Geodetic Institute, Genoa, Italy:
Monte Capellino, Italy

National Institute of Geophysics, City University, Rome, Italy:
Rome, Italy

Ministry of Postal Services, Radio Research Laboratories, Tokyo, Japan:
Akita, Japan
Tokyo (Kokubunji), Japan
Wakkanai, Japan
Yamagawa, Japan

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
Campbell I.
Cape Hallett (Adare), Antarctica
Rarotonga, Cook Is.
Scott Base, Antarctica

Norwegian Defence Research Establishment, Kjeller per Lillestrom, Norway:
Oslo, Norway
Tromso, Norway

South African Council for Scientific and Industrial Research:
Capetown, Union of South Africa
Johannesburg, Union of South Africa

Research Institute of National Defence, Stockholm, Sweden:
Kiruna, Sweden
Lycksele, Sweden
Upsala, Sweden

Royal Board of Swedish Telegraphs, Radio Department, Stockholm, Sweden:
Lulea, Sweden

United States Army Signal Corps:
Ft. Monmouth, New Jersey
Grand Bahama I.
Okinawa I.
St. John's, Newfoundland
Thule, Greenland

National Bureau of Standards (Central Radio Propagation Laboratory):
Byrd Station, Antarctica
Chimbote, Peru
Fairbanks (College), Alaska (Geophysical Institute of the University of Alaska)
Little America, Antarctica
Point Barrow, Alaska
Pole Station, Antarctica
Talara, Peru (Instituto Geofisico de Huancayo)
Wilkes Station, Antarctica

TABULATIONS OF ELECTRON DENSITY DATA

Reduction of hourly ionospheric vertical soundings to electron density profiles has become a part of the systematic ionospheric data program of the Central Radio Propagation Laboratory, National Bureau of Standards. Scalings of ionograms for this purpose are being provided by ionosphere stations operated by CRPL and the U. S. Army Signal Corps. For the present, the hourly profile data from one CRPL station, Puerto Rico, are appearing in the monthly CRPL-F Reports, Part A. These data are in place of the standard ionogram reductions formerly provided by this Station. The very considerable task of scaling the ionograms for this purpose is being undertaken by T. R. Gilliland, Engineer in Charge, Puerto Rico Ionosphere Sounding Station; the computations are performed at the NBS Boulder Laboratories by a group headed by J. W. Wright. Basic conversion of virtual to true heights uses the well-known matrix method developed by K. G. Budden of the Cavendish Laboratory, Cambridge University, programmed for an IBM 650 computer.

The tabulations provide the following basic electron density profile data for each hour of each day of the month:

Quantity	Units	Remarks
Electron Density (N)	$x10^3$ = electrons/cm^3	Body of table; given at each 10 km of height.
NMAX	$x10^3$ = electrons/cm^3	Always the highest value of N at each hour. To maintain this rule, the electron density at the next 10 km increment above HMAX is always given as exactly equal to NMAX (unless HMAX coincides with a 10 km level).
QUALification	(Alphabetic)	A standard scaling letter qualifying the observation when necessary.
HMIN	Kilometers	The height of zero or very low electron density, obtained by linear extrapolation of the electron density vs. height curve.
HMAX	Kilometers	The height of maximum electron density, determined by fitting a parabola to the upper portion of the profile.
SHMAX	$x10^{10}$ = electrons/cm^2 column.	Obtained by integration of the profile between the limits HMIN and HMAX.

Two tabulations of arithmetic mean electron densities are also given for each hour. An average for the undisturbed ionosphere includes the soundings taken when the magnetic character figure K_p is less than 4+; the remaining data are combined to form a disturbed average. The latter may have little physical significance because the number of disturbed hours is usually small and the behavior of the ionosphere during disturbed hours is not consistent. On these tabulations the number of profiles in each average is given by CNT.

Before the averaging process, the individual profiles are extrapolated above HMAX by a Chapman distribution of 100 km scale height. This assumed model seems to agree well with the few published measurements dealing with the topside profile of the F-region. Extrapolation is necessary in order to calculate homogeneous averages near HMAX and the average profiles are, in fact, given up to 950 km. Also given are the integrated electron densities estimated to infinity, SHINF (same units as SHMAX); this is an approximation to the total electron content in a column of the ionosphere.

ELECTRON DENSITY

PUERTO RICO 60 W 1 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S		A	A		
HMIN	246	236	277	300	311	280	270	115	112	109	110	109
HMAX	343	359	424	443	440	401	369	334	342	350	354	361
SHMAX	602	688	639	567	553	557	621	1175	1752	2286	2495	2805
KM												
450				698								
440				697	735							
430			735	689	729							
420			734	669	710							
410			726	638	679	774						
400			707	593	637	774						
390			679	545	579	765						
380			643	483	508	737						
370			596	417	427	698	917					2430
360		917	540	344	344	648	911				2193	2430
350	1073	911	471	278	251	580	888		1640	2096	2192	2414
340	1071	891	403	205	161	500	850	1096	1640	2084	2170	2371
330	1044	854	329	127	90.5	417	794	1095	1624	2047	2125	2302
320	982	805	255	75.6	47.2	327	716	1085	1588	1977	2057	2202
310	886	739	179	47.2		225	619	1064	1522	1896	1959	2075
300	768	661	112	1.3		127	508	1027	1437	1786	1839	1934
290	608	562	63.8			60.0	375	982	1341	1652	1708	1766
280	446	446	19.3			3.1	179	933	1228	1501	1556	1574
270	262	323					12.4	875	1107	1341	1386	1404
260	112	198						807	982	1175	1224	1240
250	43.3	90.5						732	861	1019	1065	1065
240		40.2						652	745	861	917	917
230								565	657	729	781	794
220								477	573	625	667	688
210								380	508	540	573	601
200								286	439	471	508	527
190								205	368	406	446	472
180								154	310	351	394	427
170								123	254	300	348	385
160								101	211	258	307	344
150								88.3	179	219	272	302
140								81.2	156	190	237	262
130								76.7	140	165	202	232
120								72.3	129	152	184	210
110										112	12.4	127

ELECTRON DENSITY

PUERTO RICO 60 W 1 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A		A	A	A	R					
HMIN	111	111	110	110		107	110	226	239	260	276	254
HMAX	361	341	376	380		377	382	384	417	412	405	393
SHMAX	2807	2064	2892	2809		2488	2175	1496	1580	1396	1373	1259
KM												
420									1583	1669		
410									1580	1668	1669	
400									1561	1653	1666	1556
390							1876	1640	1527	1615	1644	1555
380			2396	2227		2064	1876	1638	1477	1556	1600	1538
370	2500		2391	2217		2059	1865	1621	1406	1472	1534	1500
360	2500		2365	2188		2037	1837	1585	1323	1365	1446	1440
350	2482	2294	2314	2140		1996	1794	1529	1229	1240	1329	1360
340	2434	2283	2238	2073		1936	1735	1455	1119	1080	1198	1260
330	2355	2181	2137	1980		1855	1659	1360	990	903	1050	1143
320	2240	2057	2018	1870		1764	1565	1251	854	716	875	975
310	2103	1907	1872	1747		1654	1466	1119	716	508	679	794
300	1942	1735	1702	1604		1515	1341	975	573	335	446	608
290	1769	1556	1540	1446		1381	1216	814	446	189	219	389
280	1593	1376	1376	1298		1240	1096	661	310	104	60.0	219
270	1411	1175	1182	1143		1111	946	492	198	53.1		97.2
260	1221	1004	1019	1004		975	807	310	104			40.2
250	1035	861	875	875		836	679	179	56.5			
240	903	745	764	764		716	540	97.2	5.5			
230	781	657	665	670		608	417	40.2				
220	679	587	594	594		506	318					
210	591	524	536	527		417	240					
200	514	484	490	467		348	189					
190	462	457	450	417		291	147					
180	413	421	413	375		245	117					
170	373	368	373	331		209	95.5					
160	320	286	328	286		174	81.3					
150	272	240	290	251		151	73.1					
140	232	219	251	227		136	68.7					
130	212	210	217	212		125	65.4					
120	200	201	203	200		118	62.0					
110			83.8	49.6		112	12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 2 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL		A	J	F	A	A	A	A	A	A	A	A
HMIN	263	250	256		226	219	248	113	108	108		108
HMAX	392	394	351		374	332	375	348	326	339		351
SHMAX	921	870	456		745	515	582	1223	1638	2141		2601
KM												
400	1290	1143										
390	1290	1141										
380	1274	1124			917		661					
370	1235	1087			916		660					
360	1174	1030	854		905		653					2396
350	1096	960	854		881		639	1050				2396
340	975	854	834		845	679	618	1047		2161		2377
330	820	742	774		799	679	589	1036	1669	2148		2328
320	643	608	701		732	672	553	1018	1665	2103		2247
310	477	477	619		652	655	512	991	1642	2027		2135
300	310	323	492		551	627	462	956	1598	1919		2000
290	161	209	323		432	592	406	912	1528	1786		1826
280	88.3	127	179		310	546	335	863	1436	1612		1650
270	44.9	79.7	83.8		212	489	240	800	1330	1429		1446
260		47.2	40.2		143	417	135	732	1212	1257		1260
250		1.3			88.3	335	26.3	650	1080	1073		1065
240					56.5	229		557	932	896		907
230					23.5	90.5		477	768	754		784
220						12.4		389	608	619		688
210								310	487	519		608
200								251	389	441		547
190								204	316	378		487
180								161	258	325		429
170								130	215	282		378
160								108	179	240		331
150								93.2	149	203		290
140								82.3	129	170		251
130								77.1	120	154		221
120								71.9	112	142		207
110									71.4	127		143

ELECTRON DENSITY

PUERTO RICO 60 W 2 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL							A					
HMIN	110	110	110	110	110	110		259	265	273	270	260
HMAX	348	362	355	380	362	361		386	412	389	387	349
SHMAX	2497	2690	2489	2651	2201	1952		1419	1346	1137	1164	961
KM												
420									1640			
410									1639			
400									1622			
390								1697	1579	1697	1727	
380				2032				1694	1509	1683	1718	
370		2396		2023	1907	1756		1669	1423	1632	1675	
360		2395	2193	1995	1906	1756		1623	1303	1542	1597	
350	2327	2372	2190	1949	1892	1743		1556	1179	1407	1474	1756
340	2317	2317	2165	1882	1856	1710		1465	1035	1257	1324	1734
330	2275	2222	2115	1802	1799	1652		1353	854	1065	1143	1656
320	2200	2103	2041	1701	1714	1572		1226	679	854	917	1524
310	2083	1954	1929	1581	1617	1476		1080	492	625	661	1341
300	1948	1786	1810	1431	1501	1365		896	323	389	432	1119
290	1786	1612	1669	1240	1368	1251		679	179	198	262	834
280	1612	1429	1509	1186	1240	1153		477	90.5	60.0	97.2	508
270	1431	1240	1356	1119	1080	1035		262	43.3			179
260	1274	1096	1191	993	946	903		40.2				12.4
250	1111	946	1035	875	814	774						
240	946	834	889	778	704	655						
230	807	726	768	694	608	557						
220	691	643	661	625	540	469						
210	599	585	573	568	477	389						
200	527	531	502	513	422	330						
190	467	486	446	462	377	281						
180	421	442	401	406	335	237						
170	379	401	358	357	301	202						
160	343	362	318	314	269	169						
150	303	321	282	279	237	146						
140	269	282	248	248	202	131						
130	236	244	216	219	178	122						
120	212	223	201	198	166	115						
110	12.4	40.2	12.4	12.4	12.4	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 3 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL										A		B
HMIN	243	255	256	236	268	265	288	109	110	110	110	110
HMAX	356	354	365	375	395	391	396	375	311	347	350	341
SHMAX	1041	817	696	674	618	564	657	1754	1514	2081	2308	2249
KM												
400					896	814	960					
390					893	814	957					
380				896	870	801	937	1393				
370			1096	894	824	766	898	1392				
360	1583	1290	1093	875	768	716	846	1381				
350	1578	1288	1067	834	688	655	764	1360		1697	2032	2161
340	1542	1264	1011	781	599	580	670	1329		1694	2022	2160
330	1473	1212	934	709	498	492	557	1287		1677	1993	2143
320	1365	1133	834	625	389	408	417	1233	1640	1646	1945	2097
310	1226	1035	698	540	286	310	274	1164	1640	1602	1874	2021
300	1050	875	557	454	189	209	127	1096	1627	1540	1794	1917
290	846	698	403	362	104	122	26.3	1019	1592	1462	1680	1786
280	625	477	240	274	56.5	67.6		946	1534	1376	1556	1636
270	362	262	97.2	192	12.4	33.2		881	1461	1281	1401	1465
260	143	60.0	40.2	112				824	1362	1175	1240	1260
250	54.8			63.8				778	1240	1073	1065	1050
240				26.3				679	1111	960	903	889
230								508	946	848	754	735
220								371	754	735	634	629
210								270	573	619	547	560
200								212	417	519	477	503
190								164	323	439	423	457
180								130	262	378	371	406
170								102	215	327	323	357
160								90.1	176	282	281	310
150								82.8	148	244	233	272
140								79.2	130	209	188	237
130								75.7	121	179	174	212
120								72.1	114	165	164	200
110								12.4	40.2	12.4	12.4	40.2

ELECTRON DENSITY

PUERTO RICO 60 W 3 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL							B					
HMIN	110	110	110	110	110	110	240	255	274	280	285	275
HMAX	352	357	362	364	356	353	370	404	409	408	416	387
SHMAX	2508	2567	2614	2550	2207	1887	1261	1325	1186	1125	1131	1009
KM												
420											1528	
410								1446	1473	1528	1523	
400								1445	1465	1519	1494	
390								1430	1434	1482	1438	1528
380								1400	1383	1411	1357	1520
370			2260	2128			1500	1353	1304	1316	1251	1483
360	2227	2294	2259	2126	1969	1756	1490	1283	1208	1191	1111	1411
350	2226	2286	2243	2107	1964	1755	1460	1205	1096	1065	946	1316
340	2205	2251	2203	2066	1939	1738	1397	1115	960	896	754	1184
330	2151	2186	2135	1998	1884	1701	1323	1004	794	735	573	1004
320	2059	2085	2049	1915	1808	1636	1230	875	631	557	362	794
310	1952	1962	1932	1808	1717	1556	1131	742	477	362	198	573
300	1826	1816	1799	1682	1606	1456	1016	596	310	179	97.2	335
290	1669	1650	1636	1556	1474	1341	875	446	161	77.6	43.3	127
280	1519	1478	1465	1411	1341	1216	716	286	54.8	3.1		49.6
270	1341	1308	1308	1240	1191	1096	573	161				
260	1198	1143	1111	1080	1050	950	403	49.6				
250	1065	975	960	950	903	820	219					
240	932	834	820	834	774	691	12.4					
230	824	716	707	735	661	573						
220	732	636	616	643	565	477						
210	650	569	547	567	492	403						
200	573	522	492	502	432	341						
190	502	477	442	441	380	286						
180	442	439	397	389	335	244						
170	397	401	354	344	296	205						
160	354	358	320	310	262	176						
150	314	321	286	279	228	152						
140	278	281	245	246	198	134						
130	243	243	217	217	177	123						
120	224	221	205	202	164	116						
110	49.6	40.2	49.6	49.6	40.2	40.2						

ELECTRON DENSITY

PUERTO RICO 60 W 4 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S	A	A	A	
HMIN	257	234	242	248	254	262	269	110	112	109		110
HMAX	363	365	361	368	398	400	367	319	351	339		356
SHMAX	932	937	671	581	590	589	538	876	1701	1735		2240
KM												
400					698	716						
390					694	712						
380					681	697						
370	1500	1191	939	794	658	673	814					
360	1499	1189	939	789	623	643	810		1367			1907
350	1471	1172	928	772	582	598	793		1367			1903
340	1407	1139	898	739	529	540	762		1361	1556		1881
330	1308	1090	851	695	471	477	716		1346	1550		1840
320	1184	1027	794	634	403	396	657	960	1322	1530		1777
310	1004	939	707	557	335	310	562	955	1288	1495		1694
300	794	820	616	467	262	226	446	937	1245	1446		1589
290	540	679	508	380	198	143	310	906	1189	1376		1471
280	274	540	389	274	135	79.7	152	865	1129	1295		1327
270	112	389	262	161	75.6	44.9	12.4	807	1057	1205		1175
260	30.9	240	135	79.7	40.2			739	969	1107		1027
250		112	54.8	21.7				652	875	975		896
240		49.6						551	774	848		781
230								446	679	716		679
220								344	582	596		608
210								262	487	498		551
200								198	408	423		503
190								148	335	362		457
180								115	268	300		412
170								89.2	219	246		369
160								77.2	170	175		323
150								70.5	140	148		282
140								67.6	125	132		244
130								64.7	118	123		216
120								61.8	104	117		200
110								12.4		97.2		12.4

ELECTRON DENSITY

PUERTO RICO 60 W 4 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		N					B					
HMIN	112	112	110	110	110	114	115	252	291	323	328	305
HMAX	364	369	364	357	363	363	370	411	440	460	476	456
SHMAX	2340	2454	2286	2226	2076	1912	1548	1317	1104	1153	1289	1261
KM												
480											1556	
470											1552	
460										1446	1528	1500
450										1435	1483	1497
440									1316	1400	1414	1474
430									1307	1341	1330	1430
420								1316	1280	1257	1216	1365
410								1316	1234	1154	1080	1277
400								1308	1169	1038	932	1167
390								1288	1086	903	754	1038
380								1256	982	754	591	903
370	1938	2000	2000		1786	1612	1341	1208	861	608	403	754
360	1936	1992	1998	1907	1785	1611	1335	1154	729	432	240	591
350	1917	1963	1975	1902	1770	1599	1316	1088	596	286	127	432
340	1868	1913	1926	1876	1735	1574	1284	1004	457	143	63.8	274
330	1813	1829	1843	1830	1682	1530	1240	909	323	54.8	12.4	143
320	1737	1732	1739	1759	1599	1478	1179	804	198			77.6
310	1635	1623	1618	1669	1506	1414	1111	691	112			33.2
300	1515	1501	1487	1556	1400	1331	1035	573	53.1			
290	1381	1368	1341	1433	1278	1228	952	457				
280	1240	1228	1182	1303	1131	1107	859	335				
270	1111	1107	1027	1159	1004	990	770	209				
260	975	975	889	1019	875	875	679	90.5				
250	854	854	768	889	764	754	582					
240	747	754	672	768	661	643	487					
230	665	665	602	661	573	549	389					
220	602	601	550	582	502	462	302					
210	550	545	508	519	446	400	240					
200	504	499	469	468	397	346	198					
190	464	451	432	426	354	300	169					
180	412	409	393	385	317	259	141					
170	366	372	358	344	286	225	121					
160	325	341	321	310	253	198	104					
150	289	306	278	280	222	173	92.1					
140	253	269	240	250	196	154	82.8					
130	231	238	215	221	175	139	77.6					
120	205	219	201	202	163	129	72.5					
110			12.4	40.2	12.4							

ELECTRON DENSITY

PUERTO RICO 60 W 5 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								B		A		
HMIN	297	236	203	294		221	299	108	110		109	110
HMAX	414	334	400	412		417	436	383	327		331	337
SHMAX	1187	1112	1183	850		795	700	1394	1836		2281	2472
KM												
440							774					
430							772					
420	1816			1143		735	763					
410	1812			1142		733	745					
400	1773		960	1130		723	719					
390	1690		957	1100		700	683					
380	1568		948	1054		672	643					
370	1394		933	982		639	591	1096				
360	1201		912	896		599	534	1095				
350	1004		887	781		554	462	1089				
340	774	1756	856	643		508	389	1075			2327	2327
330	477	1753	816	498		457	302	1052	1816		2327	2320
320	240	1720	769	362		408	198	1016	1811		2305	2286
310	97.2	1650	721	198		362	112	976	1786		2246	2222
300	30.9	1543	661	60.0		318	12.4	934	1741		2148	2125
290		1411	601			278		889	1676		2014	2004
280		1221	534			240		834	1584		1838	1855
270		982	465			198		777	1479		1650	1685
260		643	396			161		710	1354		1446	1501
250		310	327			123		643	1201		1260	1321
240		71.4	255			79.7		565	1035		1073	1127
230			179			46.5		485	889		903	960
220			97.2					403	729		768	820
210			44.9					329	585		643	704
200								268	457		549	599
190								214	362		471	516
180								165	286		412	446
170								132	232		357	384
160								110	192		317	335
150								98.4	163		278	294
140								92.8	143		243	260
130								87.8	136		216	235
120								79.7	128		200	219
110								54.8	12.4		71.4	12.4

ELECTRON DENSITY

PUERTO RICO 60 W 5 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL						A	B					
HMIN	110	110	110	110	108	110		239	247	275	275	258
HMAX	356	352	356	354	347	360		379	415	413	386	370
SHMAX	2668	2571	2653	2472	2276	2283		1465	1538	1346	1166	1062
KM												
420									1612	1697		
410									1610	1696		
400									1594	1677		
390									1564	1633	1786	
380								1669	1512	1564	1779	
370								1661	1457	1474	1738	1612
360	2327	2396	2396	2260		2128		1633	1376	1354	1657	1594
350	2323	2395	2390	2257	2227	2117		1586	1281	1208	1542	1539
340	2293	2370	2354	2229	2219	2082		1514	1157	1050	1394	1455
330	2235	2310	2283	2168	2179	2023		1425	1004	834	1182	1341
320	2149	2205	2181	2064	2091	1933		1319	834	608	917	1191
310	2032	2075	2046	1934	1982	1830		1198	679	375	643	982
300	1892	1907	1889	1799	1846	1708		1050	524	209	417	774
290	1735	1727	1719	1636	1685	1556		889	362	97.2	198	540
280	1556	1537	1537	1478	1524	1394		698	219	43.3	49.6	262
270	1394	1359	1341	1312	1359	1212		508	127			112
260	1224	1175	1184	1159	1167	1050		323	67.6			26.3
250	1080	1019	1035	1004	990	875		161	19.3			
240	932	875	903	875	834	716		12.4				
230	814	764	794	754	704	596						
220	716	672	701	665	599	492						
210	637	608	622	582	516	410						
200	573	554	549	508	446	342						
190	519	508	487	446	394	286						
180	462	457	432	394	344	240						
170	412	408	385	348	300	203						
160	362	362	344	310	268	164						
150	314	314	310	281	243	141						
140	270	279	276	251	209	127						
130	240	246	243	219	179	121						
120	224	226	225	203	167	115						
110	40.2	112	49.6	49.6	71.4	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 6 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								B			A	B
HMIN	262	257	252	242	241	216	219	114	110	109	109	
HMAX	375	354	342	352	326	321	307	301	302	330	351	
SHMAX	1051	862	743	783	549	666	561	962	1213	1706	2143	
KM												
380	1556											
370	1552											
360	1520	1473		1215							1786	
350	1458	1470	1341	1215							1786	
340	1365	1435	1340	1197							1775	
330	1240	1361	1314	1154	1143	1050				1446	1748	
320	1080	1251	1249	1088	1133	1049				1440	1703	
310	896	1096	1143	990	1073	1037	960	1004	1215	1421	1636	
300	679	896	990	848	960	1004	955	1004	1215	1390	1556	
290	446	679	794	698	820	953	929	998	1205	1346	1456	
280	198	417	573	508	643	875	884	981	1179	1284	1352	
270	65.7	161	310	298	446	766	814	953	1138	1216	1230	
260		40.2	112	143	219	608	704	917	1088	1135	1131	
250				54.8	71.4	417	573	865	1012	1050	1016	
240						240	389	802	917	939	896	
230						97.2	143	726	824	834	784	
220						40.2	12.4	643	726	735	688	
210								549	625	634	599	
200								446	524	549	516	
190								323	432	469	439	
180								209	362	400	375	
170								143	306	335	316	
160								118	266	286	262	
150								102	219	246	222	
140								92.0	173	221	200	
130								84.6	140	183	191	
120								67.6	118	163	183	
110									12.4	97.2	112	

ELECTRON DENSITY

PUERTO RICO 60 W 6 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	B	B	A	A	A	A	A	A	A	A	A	A
HMIN		109	109	110							289	288
HMAX		357	364	374							412	404
SHMAX		2425	2597	2492							1162	1198
KM												
420											1583	
410											1583	1697
400											1565	1695
390											1520	1669
380				2128							1449	1612
370			2193	2126							1352	1526
360		2294	2191	2104							1226	1416
350		2285	2169	2057							1080	1269
340		2245	2122	1978							875	1096
330		2170	2049	1882							679	854
320		2055	1948	1760							446	573
310		1921	1826	1626							229	286
300		1752	1683	1478							83.8	127
290		1574	1528	1327							12.4	26.3
280		1383	1376	1143								
270		1212	1226	1004								
260		1050	1096	861								
250		903	950	754								
240		768	834	661								
230		670	726	591								
220		587	643	536								
210		521	573	496								
200		462	513	458								
190		408	462	417								
180		355	413	367								
170		300	373	318								
160		259	335	274								
150		228	301	243								
140		209	271	223								
130		195	245	211								
120		187	229	201								
110		143	161	12.4								

ELECTRON DENSITY

PUERTO RICO 60 W 7 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A	A			A	A		A	A	A	A	A
HMIN		241	221	204	240	253	248			110	110	112
HMAX		350	329	346	361	360	348			340	346	369
SHMAX		889	733	686	528	407	501			1893	2103	2543
KM												
370					716							2193
360					716	661						2183
350		1367		854	709	652	735				1876	2146
340		1352		852	690	624	731			1556	1872	2082
330		1307	1167	837	659	583	715			1549	1847	1986
320		1230	1156	809	618	521	686			1531	1798	1866
310		1131	1118	768	560	446	647			1500	1719	1727
300		990	1050	716	485	362	591			1457	1623	1572
290		820	960	643	398	262	516			1397	1507	1411
280		643	834	565	310	161	427			1333	1371	1240
270		432	679	477	219	83.8	298			1256	1228	1065
260		219	524	380	127	43.3	152			1162	1107	932
250		77.6	310	294	63.8		26.3			1061	971	814
240			143	209	3.1					960	844	716
230			65.7	127						844	735	643
220				71.4						726	650	588
210				40.2						619	573	544
200										524	519	500
190										439	467	462
180										373	417	421
170										320	367	377
160										272	310	331
150										233	258	286
140										198	219	240
130										177	195	214
120										164	184	200
110										60.0	71.4	

ELECTRON DENSITY

PUERTO RICO 60 W 7 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A	A	A		A	A	A	A	A		
HMIN	111			112	113	110		245	259	281	280	289
HMAX	354			372	380	397		396	424	406	411	420
SHMAX	2582			2739	2589	2650		1824	1953	1307	1323	1227
KM												
430									1969			
420									1967		1816	1669
410									1951	1876	1815	1653
400						2128		1969	1917	1869	1796	1607
390						2123		1965	1866	1827	1744	1528
380				2430	2128	2099		1942	1796	1747	1657	1431
370				2430	2117	2055		1899	1709	1631	1542	1283
360	2571			2409	2085	1985		1835	1607	1483	1394	1143
350	2568			2357	2032	1907		1751	1487	1281	1201	960
340	2527			2269	1942	1806		1643	1341	1073	1004	735
330	2441			2146	1841	1682		1515	1175	834	774	524
320	2307			2004	1727	1556		1371	982	573	524	323
310	2124			1855	1606	1407		1201	754	335	286	161
300	1907			1685	1474	1269		1004	557	143	143	71.4
290	1692			1501	1327	1145		794	335	60.0	63.8	12.4
280	1468			1324	1175	1004		573	179		3.1	
270	1260			1127	1050	886		362	77.6			
260	1073			975	917	768		152	12.4			
250	917			834	804	670		49.6				
240	784			726	707	591						
230	694			643	616	514						
220	615			579	540	453						
210	553			524	477	396						
200	498			472	417	341						
190	446			417	366	286						
180	407			366	323	236						
170	372			318	286	192						
160	339			274	253	161						
150	310			243	224	142						
140	278			223	196	130						
130	243			210	174	122						
120	221			198	162	116						
110						40.2						

ELECTRON DENSITY

PUERTO RICO 60 W 8 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A											B
HMIN	257	220	240	241	248	249	259	110	109	108	113	
HMAX	355	303	391	376	399	436	377	292	314	326	375	
SHMAX	1202	878	628	616	752	633	736	824	1117	1547	2166	
KM												
440						643						
430						642						
420						633						
410						618						
400			679		834	594						
390			679		830	566						
380			674	754	817	528	875				1556	
370			661	753	794	486	873				1554	
360	2096		640	741	761	435	862				1543	
350	2089		608	719	721	378	842				1520	
340	2033		573	686	667	325	812				1486	
330	1921		531	643	608	274	776			1341	1441	
320	1762		482	587	532	219	727		1004	1339	1386	
310	1528	1669	432	516	446	173	665		1004	1325	1326	
300	1208	1666	373	439	362	130	582	1073	995	1298	1248	
290	834	1625	310	362	278	97.2	487	1072	978	1259	1153	
280	477	1531	240	278	192	71.4	348	1056	949	1204	1059	
270	143	1394	179	189	112	53.1	179	1017	909	1143	969	
260	40.2	1191	104	112	60.0	34.0	40.2	953	866	1065	875	
250		917	53.1	54.8	12.4	3.1		867	817	978	786	
240		573						764	760	875	710	
230		219						643	687	774	649	
220		12.4						519	615	679	596	
210								398	529	608	545	
200								286	437	532	498	
190								205	353	462	446	
180								157	286	389	394	
170								129	240	316	341	
160								112	198	258	300	
150								99.6	172	219	259	
140								93.1	151	192	222	
130								87.9	138	175	204	
120								77.6	130	165	161	
110								12.4	71.4	127		

ELECTRON DENSITY

PUERTO RICO 60 W 8 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	B				A	A	A	A		A	A	A
HMIN	114	113	112	111	117			259	260		310	270
HMAX	348	359	360	352	351			390	420		437	430
SHMAX	2271	2394	2232	1971	1717			1018	1145		832	975
KM												
440											1119	
430											1114	1096
420									1167		1092	1089
410									1161		1050	1070
400									1145		990	1039
390								1215	1117		909	993
380								1208	1078		807	936
370								1185	1027		691	867
360		2000	1876	1756	1528			1147	967		557	784
350	2161	1992	1866	1756	1528			1100	896		403	679
340	2150	1963	1836	1740	1517			1027	810		262	557
330	2107	1913	1786	1702	1488			939	716		135	432
320	2032	1839	1708	1634	1439			834	608		63.8	310
310	1918	1754	1617	1546	1369			716	498		3.1	198
300	1786	1643	1507	1446	1291			585	375			127
290	1620	1515	1381	1329	1191			446	251			77.6
280	1446	1371	1253	1191	1084			286	143			47.2
270	1274	1226	1119	1050	971			97.2	60.0			1.3
260	1127	1096	975	917	854			12.4	3.1			
250	960	960	848	794	742							
240	834	834	729	688	643							
230	716	726	643	601	557							
220	625	643	573	536	489							
210	553	568	513	490	432							
200	492	513	473	450	384							
190	438	462	437	417	343							
180	397	417	405	380	304							
170	358	379	374	335	270							
160	325	340	339	298	237							
150	286	298	300	268	198							
140	246	259	262	240	178							
130	229	232	235	216	169							
120	179	212	212	200	161							

ELECTRON DENSITY

PUERTO RICO 60 W 9 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A						B	A			A	A
HMIN	287	289	244	219	253	264	250	110	109	109		
HMAX	425	411	369	373	371	389	378	317	310	354		
SHMAX	772	655	661	607	357	390	408	879	1013	1640		
KM												
430	939											
420	937	875										
410	924	875										
400	894	866										
390	854	843				492						
380	799	806		625	508	485	508					
370	735	754	875	625	508	480	506					
360	652	687	870	620	501	462	496			1240		
350	562	599	851	609	484	441	479			1239		
340	467	508	820	592	453	416	452			1230		
330	362	398	782	569	417	373	420			1210		
320	262	294	716	540	371	325	384	875		1179		
310	152	179	634	504	315	268	340	873	1096	1138		
300	83.8	83.8	540	464	262	205	286	862	1086	1084		
290	40.2	12.4	427	412	204	143	229	842	1058	1024		
280			310	362	138	83.8	167	812	1004	953		
270			189	298	79.7	40.2	104	776	939	875		
260			83.8	240	43.3		53.1	727	859	802		
250			40.2	179				657	764	724		
240				117				573	670	655		
230				60.0				485	573	598		
220				5.5				396	477	555		
210								318	389	519		
200								251	320	484		
190								207	267	446		
180								170	231	389		
170								141	198	320		
160								122	176	272		
150								107	156	227		
140								96.1	127	194		
130								90.5	121	175		
120								84.9	115	163		
110								12.4	83.8	112		

ELECTRON DENSITY

PUERTO RICO 60 W 9 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A	A	A	A	A			A		
HMIN	109			110	110	109		279	285	273	297	282
HMAX	379			379	369	368		417	424	435	425	403
SHMAX	2206			2079	1742	1601		849	901	922	741	739
KM												
440										1073		
430									1073	1071	1004	
420								1004	1071	1056	1002	
410								1001	1058	1025	984	1050
400								984	1029	977	948	1049
390								952	982	917	893	1032
380	1669			1556				907	923	842	818	993
370	1662			1550	1341	1265		848	850	754	726	932
360	1640			1531	1336	1262		778	764	655	631	854
350	1603			1498	1318	1248		701	670	551	519	754
340	1548			1452	1288	1223		608	573	446	389	643
330	1475			1387	1245	1188		508	467	335	262	519
320	1389			1316	1185	1143		408	348	233	152	375
310	1291			1230	1119	1089		298	229	152	71.4	251
300	1186			1133	1041	1019		189	112	97.2	19.3	135
290	1084			1032	952	939		83.8	44.9	62.9		56.5
280	971			934	865	859		12.4		40.2		
270	854			834	770	770						
260	754			745	687	687						
250	672			657	608	608						
240	602			591	547	534						
230	550			536	499	465						
220	508			492	458	406						
210	480			459	424	356						
200	454			427	392	310						
190	429			395	362	276						
180	403			365	332	243						
170	374			332	302	213						
160	342			300	272	182						
150	310			268	243	159						
140	267			237	219	145						
130	237			214	195	137						
120	222			200	183	130						
110	127			60.0	40.2	40.2						

ELECTRON DENSITY

PUERTO RICO 60 W 10 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A	J	J				S		A	A	B	B
HMIN	273	248	247	259	284	252	256	115	110	110		
HMAX	384	384	403	393	418	417	395	380	334	380		
SHMAX	685	670	650	481	494	459	569	1499	1542	2146		
KM												
420					608	492						
410			698		605	491						
400			697	625	594	483	608					
390	982	834	691	625	573	467	607					
380	981	833	678	616	546	446	601	1050		1500		
370	965	822	657	594	508	420	588	1047		1496		
360	931	798	628	566	462	389	569	1038		1482		
350	880	762	592	526	406	354	545	1023		1458		
340	810	714	550	477	342	317	514	1002	1341	1419		
330	716	650	495	417	278	276	477	972	1340	1373		
320	596	580	435	348	205	233	437	939	1331	1323		
310	477	500	368	278	132	191	389	902	1310	1264		
300	335	410	294	209	75.6	152	335	863	1278	1195		
290	198	318	226	138	40.2	112	270	819	1234	1119		
280	65.7	209	155	83.8		77.6	198	769	1177	1041		
270		112	97.2	49.6		53.8	119	721	1116	953		
260		60.0	56.5	6.8		32.2	44.9	661	1041	875		
250		12.4	18.0					602	939	794		
240								540	834	716		
230								477	716	636		
220								417	608	560		
210								348	500	495		
200								286	410	441		
190								229	342	389		
180								184	286	344		
170								147	240	300		
160								120	205	251		
150								103	176	207		
140								94.1	153	183		
130								89.0	139	172		
120								83.8	132	163		
110									40.2	49.6		

ELECTRON DENSITY

PUERTO RICO 60 W 10 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	B	B	B	A	A	A	B	A	A	A	R	
HMIN		110	111		109	110		260	237	288	304	289
HMAX		376	372		389	367		399	424	460	464	417
SHMAX		2617	2407		2249	1923		1244	1349	1365	1523	1037
KM												
470											1528	
460										1393	1527	
450										1387	1515	
440										1367	1490	
430									1316	1333	1451	
420									1315	1287	1400	1367
410									1304	1226	1335	1362
400								1393	1280	1157	1257	1335
390					1697			1387	1244	1068	1162	1287
380		2096	2000		1691			1363	1197	960	1061	1216
370		2092	2000		1670	1727		1317	1136	834	932	1133
360		2067	1983		1633	1721		1258	1065	704	774	1016
350		2016	1942		1581	1695		1188	978	557	608	861
340		1938	1872		1509	1638		1105	875	403	446	716
330		1846	1786		1425	1563		990	764	286	262	540
320		1739	1669		1321	1474		889	655	189	127	348
310		1612	1542		1221	1373		768	549	112	49.6	189
300		1474	1407		1119	1263		631	437	60.0		83.8
290		1327	1269		1004	1154		487	323	12.4		12.4
280		1175	1143		896	1035		335	219			
270		1038	1004		794	903		143	135			
260		917	875		701	781		12.4	83.8			
250		818	774		629	670			54.8			
240		732	687		568	573			18.0			
230		657	615		520	492						
220		603	561		481	423						
210		557	517		443	362						
200		519	477		411	314						
190		481	439		379	276						
180		442	403		343	243						
170		398	366		310	209						
160		354	331		272	176						
150		317	293		240	148						
140		283	262		212	130						
130		257	235		194	122						
120		235	219		182	115						
110		12.4			97.2	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 11 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S				A	A
HMIN	275	246	219	237	290	295	270	109	109	108		
HMAX	388	365	334	374	434	430	404	340	340	347		
SHMAX	818	806	582	555	471	486	596	1111	1395	1632		
KM												
440					573							
430					573	608						
420					564	603						
410					547	589	643					
400					520	566	642					
390	1215				485	532	636					
380	1207			698	442	490	623					
370	1175	1119		697	389	441	602					
360	1116	1117		687	341	378	576					
350	1038	1096		667	286	316	544			1316		
340	928	1055	896	635	226	248	504	982	1119	1313		
330	794	997	894	593	170	179	462	977	1115	1301		
320	631	909	875	540	112	119	408	960	1102	1279		
310	462	807	841	471	68.6	67.6	351	927	1080	1248		
300	286	679	778	403	42.5	33.2	292	888	1050	1205		
290	135	557	698	327			226	843	1012	1161		
280	49.6	417	596	248			143	788	960	1096		
270		262	477	170			12.4	729	903	1013		
260		119	348	104				665	840	926		
250		40.2	219	60.0				601	770	824		
240			112	19.3				540	701	716		
230			56.5					482	622	625		
220			5.5					423	549	540		
210								362	477	465		
200								298	412	406		
190								240	355	357		
180								191	300	314		
170								156	249	272		
160								133	212	236		
150								114	184	195		
140								99.8	161	168		
130								92.6	143	157		
120								86.7	134	150		
110								40.2	83.8	127		

ELECTRON DENSITY

PUERTO RICO 60 W 11 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A										
HMIN	110		113	110	110	110	110	250	278	302	305	308
HMAX	385		398	383	402	396	380	413	434	440	435	435
SHMAX	2214		2429	2097	2301	2211	1649	1374	1274	1263	1274	1237
KM												
440									1446	1612	1697	1640
430									1445	1599	1694	1637
420								1316	1429	1561	1664	1610
410					1612			1315	1394	1490	1605	1556
400			1756		1611	1556		1306	1341	1404	1522	1472
390	1612		1751	1583	1603	1554		1285	1263	1291	1420	1365
380	1610		1733	1583	1583	1542	1473	1252	1178	1157	1253	1226
370	1595		1700	1570	1551	1521	1466	1204	1073	990	1080	1065
360	1567		1649	1534	1503	1489	1443	1153	946	814	903	875
350	1515		1582	1479	1456	1446	1406	1088	807	625	716	679
340	1458		1505	1420	1390	1388	1354	1004	667	432	492	477
330	1386		1418	1354	1314	1327	1283	917	524	274	262	274
320	1304		1319	1274	1222	1255	1201	814	375	135	112	112
310	1211		1211	1182	1133	1169	1105	716	240	54.8	43.3	26.3
300	1115		1107	1086	1032	1077	1004	616	127			
290	1016		993	982	928	982	896	508	65.7			
280	917		886	886	824	886	781	389	12.4			
270	818		784	786	732	784	667	262				
260	732		688	701	650	694	562	143				
250	655		615	636	580	615	467	12.4				
240	593		559	573	524	547	382					
230	545		519	522	481	492	316					
220	504		490	481	444	446	257					
210	472		463	446	417	407	211					
200	446		435	417	389	372	172					
190	426		405	389	362	339	138					
180	404		372	362	332	310	112					
170	381		335	335	300	276	96.4					
160	352		298	303	268	243	88.0					
150	317		265	266	237	216	82.3					
140	288		242	235	212	195	79.3					
130	240		231	215	194	176	76.3					
120	222		220	203	182	164	73.2					
110	12.4			40.2	12.4	40.2	12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 12 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S	S				B
HMIN	297	244	212	318	231	314	279	116	110	108	107	109
HMAX	414	358	343	476	399	470	502	448	401	390	431	415
SHMAX	1158	1114	859	814	728	669	726	1284	1177	1029	1194	1166
KM												
510							661					
500							661					
490							655					
480				875			641					
470				873		754	617					
460				862		750	587					
450				842		735	551	754				
440				812		710	512	753			508	
430				774		675	468	747			508	
420	1697			722		633	422	737			507	492
410	1695			665		579	377	723	716		505	492
400	1664			594	735	514	331	701	716		502	491
390	1600			516	732	446	290	676	714	557	497	489
380	1501			427	720	375	248	651	708	555	491	487
370	1371			344	696	302	215	620	698	551	484	483
360	1201	1583		262	669	233	185	587	684	543	474	478
350	1004	1575	982	173	634	161	159	553	665	530	463	471
340	774	1540	982	112	588	104	139	516	645	515	452	463
330	524	1479	975	60.0	540	65.7	119	480	618	498	439	455
320	262	1389	958	12.4	487	34.6	99.3	443	589	479	425	446
310	112	1278	931		435		79.7	411	555	457	410	436
300	40.2	1127	898		382		57.9	381	519	436	395	426
290		939	854		325		41.5	354	477	415	380	415
280		679	794		268		4.5	329	438	393	366	405
270		417	707		214			308	400	374	355	394
260		179	608		152			291	365	357	344	385
250		54.8	487		92.8			277	335	340	335	377
240			335		49.6			264	314	328	332	368
230			179					252	299	318	328	361
220			65.7					240	286	309	325	355
210								224	273	304	322	350
200								203	261	299	318	345
190								176	245	294	315	340
180								148	228	289	312	334
170								125	209	279	301	322
160								108	189	260	283	310
150								97.2	170	231	253	278
140								92.3	151	207	222	237
130								87.3	138	187	197	215
120								74.5	130	168	186	202
110									40.2	143	143	49.6

ELECTRON DENSITY

PUERTO RICO 60 W 12 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		B	W				B	A	A			
HMIN	110	109	110	110	110	110		305	338	350	327	282
HMAX	384	405	603	417	357	339		457	499	503	453	397
SHMAX	1087	1325	2070	1328	999	777		449	462	544	478	470
KM												
610			524									
600			524									
590			524									
580			523									
570			523									
560			522									
550			520									
540			519									
530			517									
520			515									
510			513							590		
500			511						477	590		
490			508						475	585		
480			505						467	573		
470			502						455	554		
460			498					417	437	527	643	
450			494					416	414	494	642	
440			490					413	386	458	633	
430			486					406	354	412	611	
420			482	735				396	317	362	577	
410		643	477	734				383	278	304	529	
400		643	472	728				268	236	246	477	679
390	557	640	467	717				350	194	186	417	676
380	556	635	461	700				328	154	127	344	659
370	554	628	456	679				302	118	79.7	270	629
360	550	618	450	653	679			274	79.7	47.2	198	585
350	543	606	442	622	678			240	49.6	1.3	127	524
340	531	589	433	585	671	590		203	12.4		71.4	446
330	518	571	424	548	658	588		161			19.3	368
320	504	551	416	508	638	579		117				286
310	487	530	408	473	613	560		49.6				205
300	469	510	401	441	583	537						127
290	450	489	394	415	548	508						54.8
280	433	469	387	393	512	477						
270	416	450	380	377	473	443						
260	401	433	373	362	439	411						
250	387	417	366	353	406	380						
240	376	406	360	344	379	352						
230	366	395	355	335	356	330						
220	359	386	351	331	335	310						
210	354	379	346	327	326	294						
200	349	373	342	323	316	277						
190	344	366	338	318	304	258						
180	339	357	327	314	290	235						
170	331	343	312	310	272	211						
160	312	325	279	288	250	186						
150	282	301	248	260	224	163						
140	245	271	227	233	196	147						
130	216	245	212	214	176	137						
120	204	226	201	201	165	128						
110	40.2	143	12.4	40.2	40.2	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 13 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL				A			E			A		S
HMIN	256	253	282	289	283	266	280	112	109	110	109	110
HMAX	376	391	438	424	427	428	389	304	362	408	359	364
SHMAX	427	408	388	349	344	329	361	661	1145	1778	1544	1886
KM												
440			417									
430			416	432	389	348						
420			409	431	388	347						
410			398	425	382	342				960		
400		477	380	413	372	331				959		
390		477	357	394	356	318	446			956		
380	608	473	333	369	335	301	444			949		
370	606	463	303	339	312	279	437		735	939		1420
360	592	446	269	298	282	254	424		735	926	1119	1419
350	566	424	233	254	248	227	405		733	909	1115	1408
340	528	395	195	209	209	196	383		727	890	1100	1385
330	482	358	157	161	170	167	354		718	870	1071	1350
320	417	318	119	115	131	135	317		705	846	1036	1296
310	348	272	87.2	71.4	90.5	106	272	735	688	818	990	1240
300	270	224	60.0	44.9	57.9	78.9	219	734	667	787	939	1165
290	198	179	35.5	34.1	30.9	56.5	152	722	643	750	881	1088
280	117	127				40.2	12.4	697	616	708	820	1004
270	63.8	75.6				5.5		656	588	665	754	909
260	26.3	42.5						608	558	621	685	818
250								540	526	573	625	735
240								465	491	531	573	657
230								396	454	486	529	591
220								335	417	450	498	536
210								281	377	423	473	492
200								236	339	395	453	454
190								198	307	357	431	417
180								167	272	340	403	386
170								141	240	298	362	352
160								122	209	260	310	320
150								108	179	232	262	281
140								96.6	154	191	219	229
130								90.8	140	163	195	212
120								85.0	132	150	184	202
110									60.0	49.6	127	49.6

ELECTRON DENSITY

PUERTO RICO 60 W 13 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL			A			A	A	A	A			
HMIN	110	110	110	108	110	109	113	228	285	292	270	297
HMAX	350	372	373	368	383	381	374	427	436	425	417	430
SHMAX	1886	2060	1870	1706	1800	1674	1354	1179	1111	1111	1079	1010
KM												
440									1316			
430								1143	1312	1420		1265
420								1140	1293	1417	1316	1256
410								1126	1255	1396	1311	1230
400								1100	1191	1353	1290	1186
390					1316	1316		1063	1119	1289	1250	1125
380		1500	1341		1315	1316	1215	1014	1027	1205	1191	1050
370		1500	1341	1290	1306	1308	1214	953	917	1107	1124	946
360		1492	1332	1286	1285	1287	1201	882	781	960	1016	814
350	1556	1472	1311	1268	1252	1253	1172	802	655	807	889	679
340	1547	1440	1279	1235	1204	1200	1127	716	524	643	742	508
330	1520	1397	1234	1181	1153	1143	1069	625	389	477	596	362
320	1475	1341	1173	1123	1088	1075	997	540	262	274	462	209
310	1409	1263	1109	1056	1012	996	917	437	161	135	323	90.5
300	1332	1188	1035	978	932	905	826	353	77.6	56.5	179	30.9
290	1240	1105	952	900	850	824	735	262	33.2		92.8	
280	1119	1004	875	818	764	735	643	192			52.2	
270	1016	900	794	739	687	650	557	138				
260	907	804	716	665	619	567	477	97.2				
250	804	716	649	602	559	503	412	65.7				
240	716	643	595	550	516	451	356	44.9				
230	643	585	553	508	477	405	306	7.8				
220	585	544	518	474	446	368	266					
210	535	508	488	444	417	338	231					
200	488	482	460	417	386	310	201					
190	450	450	430	389	352	283	175					
180	414	413	396	364	320	257	152					
170	380	375	358	340	286	229	132					
160	350	339	325	313	251	204	116					
150	321	298	286	278	219	177	104					
140	292	260	256	240	194	156	94.9					
130	261	238	236	217	175	141	89.1					
120	244	225	222	205	165	132	81.3					
110	40.2	49.6	40.2	83.8	12.4	71.4						

ELECTRON DENSITY

PUERTO RICO 60 W 14 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL					A		A	A		A		
HMIN	289	254	229	223	220	237	258		115		110	110
HMAX	407	354	329	334	354	367	362		312		380	414
SHMAX	973	729	579	404	416	316	370		1069		2115	2824
KM												
420												1697
410	1367											1697
400	1361											1689
390	1333											1674
380	1282										1393	1650
370	1205					417	524				1389	1619
360	1107	1290			540	415	524				1377	1579
350	975	1287			539	406	518				1357	1527
340	814	1253		679	531	389	504				1324	1469
330	625	1182	917	677	513	364	483				1282	1404
320	417	1073	909	657	485	335	453		960		1240	1333
310	240	917	879	613	446	294	412		960		1186	1256
300	90.5	716	827	549	400	254	348		954		1131	1175
290	12.4	508	754	477	346	207	278		940		1069	1096
280		286	667	389	292	161	205		917		997	1004
270		127	557	302	235	115	112		887		924	924
260		49.6	417	209	179	77.6	26.3		850		850	842
250			286	127	122	49.6			799		781	768
240			112	71.4	74.5	12.4			739		716	698
230			12.4	42.5	47.2				665		649	643
220					1.3				591		591	591
210									508		540	545
200									439		490	504
190									368		446	465
180									310		401	426
170									258		362	384
160									215		325	343
150									187		286	303
140									158		255	266
130									137		222	237
120									112		200	219
110											60.0	97.2

ELECTRON DENSITY

PUERTO RICO 60 W 14 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL							B		A			S
HMIN	110	109	110	108	108	110	114	260		280	287	269
HMAX	383	375	385	382	377	387	399	406		405	422	389
SHMAX	2515	2466	2503	2321	2162	1912	1774	1362		1023	1225	905
KM												
430											1500	
420											1500	
410								1446		1420	1486	
400							1420	1444		1416	1452	
390	1907		1876	1786		1446	1416	1428		1389	1399	1420
380	1906	1969	1874	1785	1669	1444	1401	1397		1333	1323	1405
370	1892	1966	1858	1775	1665	1431	1376	1352		1248	1229	1355
360	1860	1944	1827	1748	1648	1409	1341	1287		1143	1119	1268
350	1810	1900	1779	1707	1617	1375	1285	1214		1016	975	1155
340	1735	1828	1714	1646	1572	1329	1228	1124		854	794	990
330	1648	1743	1640	1571	1508	1265	1167	1016		691	608	807
320	1545	1635	1545	1483	1438	1201	1096	896		524	432	608
310	1435	1519	1436	1383	1350	1135	1004	768		335	240	417
300	1316	1394	1329	1265	1250	1050	909	625		189	112	251
290	1197	1265	1198	1162	1133	960	814	462		77.6	30.9	135
280	1080	1143	1073	1038	1027	865	716	310				65.7
270	960	1016	950	917	917	770	619	152				12.4
260	854	896	844	794	824	679	519	12.4				
250	754	784	745	688	726	591	427					
240	672	698	657	608	636	514	348					
230	608	631	591	546	560	446	286					
220	554	573	535	500	498	389	232					
210	508	528	488	462	446	340	187					
200	474	486	446	425	401	298	150					
190	444	446	414	389	358	259	120					
180	414	410	383	354	321	222	99.3					
170	382	375	352	314	286	187	85.2					
160	348	342	320	272	253	155	76.8					
150	314	307	286	228	219	135	70.4					
140	282	272	250	206	191	125	67.1					
130	244	239	219	193	176	119	63.7					
120	224	223	205	185	167	114	60.4					
110	60.0	143	60.0	143	127	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 15 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S	S	A	A	A	A
HMIN	274	269	244	225	233	234	108	107	107		111	
HMAX	406	385	371	361	352	339	344	434	367		359	
SHMAX	902	806	842	769	629	475	769	1887	1843		2344	
KM												
440								939				
430								938				
420								937				
410	1290							933				
400	1285							928				
390	1255	1215						921				
380	1191	1212	1143					912				
370	1115	1185	1143	1027				901	1393			
360	1004	1127	1130	1027	917			888	1391		1938	
350	875	1050	1096	1016	917		735	873	1382		1930	
340	716	939	1037	987	903	774	735	854	1366		1905	
330	557	807	960	939	870	766	728	836	1341		1862	
320	389	643	865	875	820	738	714	815	1299		1800	
310	251	492	754	786	747	685	693	794	1257		1714	
300	152	335	631	688	661	622	663	771	1211		1612	
290	77.6	189	508	573	551	540	627	746	1162		1501	
280	40.2	83.8	375	456	432	437	583	719	1102		1381	
270		12.4	240	323	323	323	527	686	1027		1253	
260			112	219	198	198	465	647	952		1127	
250			49.6	119	97.2	97.2	396	602	854		990	
240				67.6	43.3	46.5	327	540	754		854	
230				33.2			262	477	652		735	
220							209	403	540		634	
210							161	342	437		549	
200							124	286	344		483	
190							101	236	251		432	
180							83.8	198	170		384	
170							71.4	167	120		340	
160							63.3	141	107		298	
150							56.5	122	98.9		259	
140							50.8	108	94.5		219	
130							47.1	96.6	91.2		194	
120							43.9	90.8	87.8		179	
110							40.8	85.0	84.5			

ELECTRON DENSITY

PUERTO RICO 60 W 15 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL					A		B		A	A	A	
HMIN	109	110	108	110	110	110		250	250	282	311	263
HMAX	384	385	379	389	395	401		409	440	431	468	407
SHMAX	2564	2641	2564	2330	2220	2170		1637	1611	1145	1453	1493
KM												
470											1640	
460											1634	
450											1609	
440									1473	1446	1565	
430									1467	1446	1502	
420									1450	1431	1418	
410						1640		1583	1420	1391	1319	1697
400					1669	1640		1578	1379	1321	1198	1693
390	1907	2032		1697	1667	1632		1559	1326	1221	1050	1670
380	1905	2029	1907	1692	1652	1610		1527	1262	1119	875	1627
370	1890	2011	1900	1672	1622	1574		1480	1183	990	679	1565
360	1858	1975	1878	1639	1578	1517		1418	1096	848	508	1484
350	1810	1920	1840	1591	1512	1453		1348	993	704	335	1383
340	1735	1842	1786	1524	1438	1374		1258	886	562	189	1265
330	1650	1754	1708	1446	1350	1286		1162	764	417	97.2	1127
320	1556	1643	1621	1359	1250	1196		1050	643	262	49.6	946
310	1446	1515	1523	1260	1131	1096		917	519	170		754
300	1330	1381	1411	1143	1027	995		794	389	92.8		540
290	1216	1240	1296	1038	926	886		655	274	46.5		323
280	1096	1107	1179	939	826	794		508	170			143
270	982	960	1061	834	739	698		323	97.2			54.8
260	875	834	950	747	665	616		143	53.1			
250	778	735	844	672	596	547		12.4				
240	701	650	747	608	540	483						
230	631	585	672	557	490	429						
220	578	536	608	516	446	385						
210	532	499	551	480	405	347						
200	492	468	503	446	368	310						
190	457	441	459	414	335	276						
180	426	414	417	383	304	243						
170	395	382	379	350	274	212						
160	358	348	345	314	246	182						
150	321	316	313	278	216	156						
140	278	279	286	243	193	137						
130	240	246	253	216	176	125						
120	224	226	228	204	167	117						
110	71.4	49.6	161	49.6	49.6	40.2						

ELECTRON DENSITY

PUERTO RICO 60 W 16 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							A	A	A	A	A	
HMIN	267	255	349	298	275	347				110	110	108
HMAX	394	386	499	436	419	500				377	397	374
SHMAX	1061	984	920	926	980	838				2180	2729	2605
KM												
500			1096			982						
490			1089			975						
480			1067			949						
470			1029			909						
460			973			863						
450			903			805						
440			818	1191		732						
430			726	1187		643						
420			619	1166	1167	551						
410			508	1124	1160	457						
400	1420		398	1063	1138	362					1816	
390	1418	1191	286	982	1100	270					1813	
380	1397	1188	170	875	1050	186				1612	1800	2064
370	1353	1172	102	754	975	104				1609	1777	2062
360	1279	1141	54.8	643	886	60.0				1595	1744	2045
350	1191	1096	5.5	508	784	19.3				1569	1700	2010
340	1080	1042		375	667					1531	1640	1956
330	932	960		251	540					1482	1570	1879
320	754	861		135	417					1418	1497	1786
310	573	742		67.6	298					1348	1418	1679
300	403	596		12.4	179					1265	1323	1556
290	240	446			97.2					1164	1230	1401
280	97.2	298			44.9					1061	1131	1255
270	40.2	127								960	1027	1111
260		49.6								854	928	960
250										754	834	834
240										672	745	735
230										601	665	643
220										540	594	573
210										487	535	526
200										442	482	481
190										389	437	443
180										344	389	407
170										303	347	372
160										269	310	341
150										237	279	315
140										202	246	288
130										177	219	256
120										164	200	228
110										12.4	40.2	143

ELECTRON DENSITY

PUERTO RICO 60 W 16 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL			B		A	A			S			
HMIN	107	109	110	107	109	110	114	246	261	271	298	289
HMAX	386	370	368	358	366	354	365	368	416	428	443	411
SHMAX	2834	2603	2421	2013	1858	1720	1455	923	1111	969	1040	844
KM												
450											1215	
440											1215	
430										1073	1203	
420									1191	1068	1176	1191
410									1189	1051	1134	1191
400									1174	1020	1077	1177
390	2128								1146	976	1004	1141
380	2125								1104	923	917	1080
370	2105	2193	1969		1500		1341	1240	1050	850	807	996
360	2068	2182	1963	1640	1498	1556	1339	1234	982	770	691	896
350	2010	2146	1939	1635	1483	1554	1325	1207	900	688	557	768
340	1936	2087	1894	1613	1456	1537	1295	1161	804	591	403	625
330	1846	1998	1830	1575	1415	1501	1251	1088	707	487	251	462
320	1739	1882	1756	1517	1360	1446	1184	1004	608	380	135	323
310	1618	1760	1657	1453	1287	1371	1111	889	498	262	65.7	179
300	1487	1620	1543	1368	1205	1286	1032	768	375	161	12.4	77.6
290	1341	1462	1416	1263	1115	1171	934	619	251	88.3		12.4
280	1204	1291	1278	1162	1004	1061	834	462	138	49.6		
270	1073	1127	1111	1050	886	939	726	286	65.7			
260	939	960	975	928	781	824	625	112				
250	807	824	834	820	679	716	524	44.9				
240	709	707	716	716	591	616	437					
230	631	616	629	616	514	532	362					
220	573	547	562	547	457	459	298					
210	529	505	508	487	410	400	245					
200	494	474	469	443	373	351	203					
190	458	449	432	407	339	306	167					
180	424	417	396	372	307	262	139					
170	389	385	362	339	270	228	116					
160	359	347	320	310	237	196	100					
150	329	310	282	278	202	170	87.5					
140	294	274	240	237	175	150	80.4					
130	260	243	216	206	159	137	75.4					
120	234	225	204	189	150	124	65.7					
110	179	83.8	49.6	161	127	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 17 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL			J	A	A			A	A			
HMIN	276	255	263	260	269	280	256	109	107	107	105	109
HMAX	397	377	391	386	410	409	344	320	343	342	371	372
SHMAX	786	642	658	511	503	532	528	899	1316	1455	1998	2216
KM												
410					643	661						
400	1072		834		637	657						
390	1068		834	698	620	645						
380	1045	917	826	695	590	624					1420	1727
370	1004	913	807	681	553	595					1420	1726
360	946	892	775	654	503	559					1414	1715
350	867	852	731	612	446	508	834		1004	1143	1399	1688
340	774	794	679	557	382	439	833		1004	1143	1375	1640
330	667	716	608	492	310	362	819		999	1135	1341	1584
320	540	619	524	417	240	278	792	875	989	1116	1291	1513
310	375	508	437	335	179	198	750	871	973	1084	1240	1425
300	219	389	323	262	117	117	698	859	950	1045	1175	1321
290	104	274	209	179	75.6	60.0	616	839	925	992	1109	1212
280	40.2	161	119	104	47.7	3.1	487	811	890	929	1027	1084
270		83.8	49.6	53.1	6.8		310	778	850	861	943	960
260		33.2					71.4	733	804	787	850	844
250								672	742	716	762	745
240								599	679	650	679	652
230								508	608	590	608	585
220								408	540	536	547	532
210								318	469	492	497	492
200								240	389	454	451	459
190								174	318	417	410	427
180								131	258	381	373	395
170								109	215	340	335	357
160								99.9	174	298	296	314
150								95.0	138	253	259	274
140								91.9	126	215	228	237
130								88.8	121	182	198	215
120								85.7	117	169	185	201
110								49.6	112	127	143	97.2

ELECTRON DENSITY

PUERTO RICO 60 W 17 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A		A	A			A					
HMIN		110	110	110	110	110	110	249	271	295	295	296
HMAX		379	391	393	370	360	380	384	428	429	436	415
SHMAX		2668	2568	2514	2083	1892	1711	1025	1091	1057	1104	973
KM												
440											1393	
430									1215	1393	1389	
420									1210	1384	1366	1420
410									1190	1351	1322	1416
400			1876	1846					1154	1283	1256	1386
390			1876	1845				1215	1102	1205	1169	1324
380		2063	1867	1833			1393	1214	1031	1107	1061	1240
370		2056	1843	1807	1815		1389	1198	949	975	931	1127
360		2030	1805	1765	1805	1612	1375	1165	854	834	781	982
350		1985	1744	1709	1775	1604	1353	1114	754	679	625	814
340		1922	1675	1634	1724	1581	1315	1042	652	508	446	643
330		1832	1590	1546	1651	1538	1271	960	540	348	286	417
320		1732	1496	1446	1564	1481	1224	865	417	198	143	240
310		1618	1394	1341	1446	1414	1170	764	298	97.2	77.6	112
300		1487	1285	1212	1316	1331	1104	655	198	43.3	33.2	40.2
290		1354	1143	1084	1191	1231	1019	540	127			
280		1224	1027	960	1050	1143	926	417	60.0			
270		1084	907	854	917	1038	814	286				
260		960	804	754	781	917	698	135				
250		865	716	665	661	804	585	12.4				
240		770	649	596	565	688	467					
230		698	590	545	495	582	371					
220		637	540	505	442	487	278					
210		573	496	473	401	410	214					
200		508	458	441	362	348	165					
190		442	424	410	324	295	130					
180		394	397	377	292	251	100					
170		355	368	348	255	215	83.0					
160		321	331	321	222	185	74.7					
150		281	286	292	187	156	69.8					
140		240	240	256	161	136	67.0					
130		215	215	227	153	123	64.2					
120		203	203	206	146	116	61.4					
110		60.0	40.2	40.2	12.4	40.2	12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 18 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							A	A	A	A	A	A
HMIN	281	239	268	273	293	266			110	110	114	112
HMAX	395	355	433	448	436	375			364	361	369	381
SHMAX	1017	846	940	928	787	700			1933	2214	2394	2598
KM												
450				960								
440			982	957	982							
430			982	944	980							
420			975	920	964							
410			958	885	933							
400	1446		934	843	889							
390	1443		903	787	834							2000
380	1419		854	716	754	1050						2000
370	1370		799	643	661	1047			1446	1669	1846	1989
360	1296	1215	698	557	551	1027			1446	1668	1839	1960
350	1197	1213	616	469	437	982			1436	1661	1816	1912
340	1080	1191	529	389	318	917			1416	1642	1773	1839
330	896	1147	437	302	209	834			1386	1610	1708	1756
320	679	1080	344	226	132	726			1346	1566	1634	1657
310	446	993	240	155	75.6	590			1291	1507	1546	1543
300	240	861	161	102	42.5	446			1233	1446	1446	1423
290	90.5	716	92.8	63.8		274			1158	1359	1331	1303
280		557	53.1	40.2		119			1080	1268	1228	1186
270		389	12.4			43.3			997	1164	1115	1073
260		219							917	1068	1004	949
250		83.8							841	978	907	834
240		12.4							767	883	818	739
230									694	794	739	665
220									629	707	672	594
210									557	622	608	535
200									477	540	551	482
190									396	462	489	434
180									316	395	429	396
170									258	335	367	362
160									215	286	315	318
150									179	248	274	262
140									151	215	237	213
130									137	182	209	192
120									128	166	179	180
110									12.4	40.2		

ELECTRON DENSITY

PUERTO RICO 60 W 18 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A			A	A	A					
HMIN	110	110	110	109	109	109		245	274	275	290	259
HMAX	379	383	383	384	390	396		411	420	419	414	370
SHMAX	2513	2640	2579	2403	2575	2250		1700	1401	1244	1106	968
KM												
420								1727	1612	1446	1528	
410								1726	1602	1439	1526	
400						1669		1716	1572	1413	1502	
390		2063	1969	1969	1969	1666		1689	1523	1370	1453	
380	2000	2063	1968	1967	1962	1652		1645	1454	1302	1374	
370	1992	2048	1954	1948	1941	1625		1585	1360	1221	1274	1446
360	1963	2014	1924	1907	1907	1585		1501	1251	1124	1143	1432
350	1913	1962	1868	1835	1852	1530		1404	1131	1004	982	1389
340	1839	1888	1805	1756	1797	1466		1296	990	875	794	1314
330	1754	1795	1723	1656	1719	1385		1171	814	729	573	1216
320	1643	1690	1623	1531	1627	1295		1034	625	573	362	1080
310	1519	1568	1512	1401	1515	1206		875	432	403	161	917
300	1400	1446	1394	1254	1381	1124		716	262	240	71.4	716
290	1269	1298	1254	1111	1240	1022		540	135	112	3.1	508
280	1119	1143	1143	975	1119	917		375	54.8	44.9		286
270	990	993	1004	834	975	814		240				97.2
260	875	875	875	726	834	716		112				12.4
250	764	764	774	634	707	634		44.9				
240	679	672	679	562	599	560						
230	608	601	608	513	514	495						
220	551	540	546	474	451	437						
210	499	492	500	444	405	389						
200	458	456	463	417	365	341						
190	426	426	428	389	328	291						
180	397	392	395	358	293	248						
170	368	362	362	326	259	209						
160	331	324	328	290	226	173						
150	286	286	290	245	196	146						
140	240	240	257	213	174	126						
130	216	216	234	195	158	121						
120	202	204	219	185	149	115						
110	12.4	40.2	49.6	127	83.8	49.6						

ELECTRON DENSITY

PUERTO RICO 60 W 19 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL										A		A
HMIN	274	269	246	240	251	203	242	114	110	117	110	
HMAX	415	382	366	380	359	332	342	322	315	343	363	
SHMAX	1058	893	800	802	631	550	444	950	1169	1784	2447	
KM												
420	1290											
410	1288											
400	1270											
390	1235	1316										
380	1183	1315		1027								
370	1116	1297	1119	1018							1786	
360	1027	1252	1115	993	960						1785	
350	917	1180	1093	949	952		643			1555	1777	
340	781	1096	1050	889	925	735	643			1555	1758	
330	643	960	990	818	875	735	635	960		1542	1728	
320	492	814	900	716	810	727	616	960	1143	1513	1688	
310	335	643	794	608	707	704	584	952	1141	1469	1633	
300	179	446	679	497	590	671	544	932	1126	1404	1573	
290	83.8	229	524	389	462	628	489	898	1096	1332	1497	
280	40.2	83.8	375	286	323	567	424	857	1044	1240	1414	
270		12.4	229	179	179	492	335	800	985	1133	1331	
260			97.2	102	77.6	408	240	732	917	1027	1229	
250			40.2	49.6		310	112	650	834	903	1119	
240						219		567	745	784	1016	
230						135		484	652	670	896	
220						79.7		403	565	582	767	
210						42.5		329	477	508	631	
200								262	403	451	519	
190								209	341	398	441	
180								161	286	357	389	
170								132	240	310	348	
160								112	205	266	313	
150								97.2	176	237	279	
140								91.6	153	196	248	
130								86.1	139	172	221	
120								74.5	130	127	194	
110									49.6		12.4	

ELECTRON DENSITY

PUERTO RICO 60 W 19 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	110	110	110	110	113	115	109	258	261	296	279	278
HMAX	362	379	381	359	376	376	364	411	420	437	410	397
SHMAX	2440	2501	2579	2230	2238	2035	1715	1371	1234	1201	1168	894
KM												
440										1420		
430										1415		
420								1446	1367	1394		
410								1446	1359	1356	1446	
400								1438	1335	1297	1437	1316
390			2032					1414	1296	1231	1410	1309
380		2000	2032		1786	1669		1376	1240	1143	1364	1275
370	2032	1992	2021		1783	1666	1555	1321	1165	1019	1298	1213
360	2031	1963	1991	2032	1766	1650	1554	1253	1077	875	1221	1124
350	2017	1913	1944	2020	1734	1618	1540	1169	971	716	1119	1004
340	1982	1839	1874	1981	1686	1572	1510	1073	847	557	975	861
330	1927	1754	1794	1915	1619	1505	1463	949	716	375	814	704
320	1846	1643	1690	1816	1546	1429	1397	820	573	229	608	540
310	1750	1519	1568	1704	1446	1341	1324	691	432	97.2	389	362
300	1631	1386	1433	1555	1341	1240	1240	551	298	40.2	219	189
290	1493	1253	1298	1416	1226	1119	1124	403	189		90.5	77.6
280	1354	1096	1143	1257	1084	993	1016	251	97.2		12.4	21.7
270	1208	960	1004	1065	960	875	889	112	49.6			
260	1061	844	875	917	834	754	781	26.3				
250	917	735	754	781	726	655	667					
240	794	650	665	670	634	565	551					
230	698	588	594	582	560	484	446					
220	615	544	535	524	497	423	362					
210	551	514	482	473	446	375	286					
200	503	485	440	435	398	332	232					
190	462	450	408	399	357	296	191					
180	421	405	380	368	317	262	156					
170	381	362	359	338	279	231	130					
160	343	318	327	304	248	201	110					
150	302	278	282	272	215	174	93.6					
140	258	246	240	240	185	152	82.9					
130	219	219	215	214	170	138	78.1					
120	203	202	202	200	143	129	73.3					
110	12.4	40.2	49.6	40.2			12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 20 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S	A	A	A	A	A
HMIN	280	264	246	228	230	231	103				110	114
HMAX	404	368	366	372	355	380	361				353	376
SHMAX	1020	836	810	756	508	465	680				1997	2286
KM												
410	1341											
400	1340											
390	1322											
380	1284			834		540						1727
370	1225	1290	1096	834		536	661					1724
360	1150	1281	1092	827	643	525	661				1555	1706
350	1050	1246	1073	812	642	505	656				1555	1673
340	917	1184	1035	788	632	479	642				1544	1612
330	754	1096	979	754	613	446	619				1521	1547
320	590	975	909	711	585	403	587				1485	1463
310	389	820	814	658	548	356	548				1433	1376
300	209	643	704	594	497	305	497				1367	1274
290	77.6	446	562	521	446	251	446				1294	1172
280		219	417	446	380	203	389				1211	1068
270		60.0	262	362	310	155	330				1115	960
260			112	262	226	107	280				1022	865
250			40.2	161	127	68.6	236				926	778
240				71.4	60.0	40.2	195				824	701
230				21.7	3.1		164				726	637
220							136				636	583
210							115				567	536
200							97.2				503	492
190							83.8				451	451
180							72.6				405	414
170							64.1				362	377
160							57.5				324	339
150							52.6				286	303
140							47.5				250	269
130							42.3				219	232
120							29.8				202	143
110							12.4				40.2	

ELECTRON DENSITY

PUERTO RICO 60 W 20 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A		A	A	A	A	A	A			
HMIN			110	110		111		261	232	259	287	300
HMAX			383	391		387		397	439	425	431	424
SHMAX			2697	2651		2281		1555	1871	1387	1018	826
KM												
440									1555		1290	
430									1551	1420	1290	1290
420									1537	1418	1278	1287
410									1513	1404	1245	1252
400				2096				1786	1478	1377	1192	1162
390			2227	2095		1815		1780	1434	1335	1119	1061
380			2225	2083		1812		1754	1379	1280	1027	931
370			2205	2050		1794		1706	1312	1208	903	794
360			2161	1990		1760		1637	1240	1124	754	655
350			2080	1921		1712		1545	1152	1027	619	508
340			1986	1826		1644		1433	1059	907	487	348
330			1866	1715		1564		1298	949	781	362	219
320			1727	1593		1466		1157	834	643	219	112
310			1572	1460		1362		990	716	508	119	56.5
300			1411	1312		1240		794	596	375	63.8	
290			1254	1159		1096		590	477	251	19.3	
280			1096	1004		971		362	353	143		
270			946	875		854		127	240	71.4		
260			820	754		745			143	12.4		
250			716	661		652			79.7			
240			631	587		573			44.9			
230			575	536		502						
220			532	492		442						
210			495	454		389						
200			465	420		335						
190			436	389		286						
180			409	362		246						
170			379	329		212						
160			343	298		182						
150			307	262		161						
140			276	235		146						
130			246	215		137						
120			225	204		130						
110			12.4	49.6								

ELECTRON DENSITY

PUERTO RICO 60 W 21 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL								A				A
HMIN	282	257	248	241	249	239	239	110	109	110	110	105
HMAX	409	372	369	380	371	365	357	319	320	365	359	372
SHMAX	1094	956	885	795	693	574	652	1059	1351	1994	1967	2302
KM												
410	1473											
400	1463											
390	1429											
380	1371	1341		960	939							1846
370	1286	1341	1143	953	938	774				1420		1845
360	1186	1325	1136	933	929	768	794			1419	1583	1834
350	1050	1287	1114	896	905	744	791			1411	1576	1807
340	889	1224	1075	849	865	707	781			1394	1550	1764
330	698	1143	1021	787	807	658	762			1370	1498	1704
320	492	1038	952	716	735	594	734	1096	1215	1337	1446	1625
310	286	889	861	625	643	524	696	1090	1210	1293	1365	1534
300	135	729	742	529	529	446	653	1069	1195	1249	1277	1423
290	60.0	524	608	417	403	362	594	1029	1170	1191	1187	1303
280		310	462	323	286	270	508	977	1135	1127	1096	1186
270		119	286	233	170	186	408	917	1096	1050	987	1065
260		40.2	112	135	77.6	112	286	842	1037	960	885	931
250			26.3	60.0	12.4	60.0	143	762	960	867	794	794
240						5.5	12.4	670	865	774	710	679
230								582	764	670	643	582
220								487	643	594	580	514
210								389	532	529	524	459
200								294	439	477	477	421
190								219	367	427	430	389
180								170	310	372	389	354
170								139	262	320	348	310
160								117	223	276	316	266
150								103	190	237	281	190
140								94.8	165	207	237	170
130								90.0	142	181	202	158
120								85.3	132	167	186	152
110								49.6	71.4	12.4	12.4	145

ELECTRON DENSITY

PUERTO RICO 60 W 21 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL	A	A	A				A	A	A	S	A	A
HMIN	109		109	110	110	110	114	259	246	302		276
HMAX	365		362	383	392	395	380	403	438	479		439
SHMAX	2368		2173	2210	2069	1886	1552	1048	1032	907		811
KM												
480										917		
470										913		
460										900		
450										878		
440									982	847		1004
430									979	806		997
420									968	757		971
410								1167	947	698		922
400					1420	1367		1166	917	629		861
390				1583	1419	1366		1154	882	548		786
380				1583	1413	1356	1316	1128	834	462		698
370	1876		1815	1573	1396	1334	1310	1084	777	380		608
360	1874		1815	1552	1369	1305	1292	1027	710	302		508
350	1856		1802	1519	1331	1264	1263	960	636	226		408
340	1821		1769	1473	1277	1210	1218	883	557	152		318
330	1764		1717	1411	1221	1149	1164	794	469	102		226
320	1690		1642	1341	1156	1080	1107	698	382	65.7		161
310	1603		1555	1257	1088	1004	1034	590	310	42.1		112
300	1501		1435	1169	1004	917	952	477	229			74.5
290	1394		1316	1077	926	834	854	371	167			49.6
280	1285		1175	978	842	747	754	251	115			17.0
270	1182		1034	885	762	672	655	112	77.6			
260	1073		907	802	691	594	562	12.4	49.6			
250	960		794	716	631	529	469		17.0			
240	834		698	643	573	472	389					
230	726		608	585	526	422	323					
220	625		540	536	484	381	272					
210	540		490	490	446	343	232					
200	465		450	450	410	310	195					
190	412		414	409	373	280	161					
180	369		386	372	339	251	132					
170	335		355	339	304	224	110					
160	304		321	304	272	198	95.3					
150	272		282	270	243	174	85.7					
140	247		240	240	219	153	80.6					
130	232		218	214	197	139	76.6					
120	221		206	198	179	130	72.6					
110	127		161	12.4	12.4	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 22 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL			S					S		A		
HMIN	331	300	267	231	232	253	254	110	110	110	110	111
HMAX	470	433	386	353	334	390	366	336	309	322	369	381
SHMAX	876	781	866	708	471	407	510	1185	1136	1491	2002	2203
KM												
470	1027											
460	1020											
450	999											
440	964	1004										
430	917	1004										
420	854	990										
410	778	960										
400	694	911										
390	599	847	1167			492						1555
380	500	764	1163			489						1555
370	398	679	1142			478	643				1420	1549
360	278	573	1101	982		460	641				1416	1531
350	161	477	1042	981		435	633				1402	1501
340	77.6	353	960	968	735	403	616	1027			1378	1461
330		240	865	930	734	365	592	1026		1393	1345	1400
320		135	742	884	720	318	562	1018		1393	1296	1333
310		65.7	608	818	691	267	522	1002	1191	1383	1245	1256
300		3.1	462	726	647	214	471	980	1184	1358	1178	1180
290			286	619	587	165	403	949	1158	1319	1109	1096
280			143	497	508	117	318	913	1111	1265	1031	1013
270			40.2	371	403	79.7	209	870	1050	1195	952	917
260				262	274	43.5	71.4	817	969	1119	867	834
250				152	152			754	875	1016	786	747
240				65.7	60.0			679	774	896	710	672
230								582	670	754	643	602
220								477	565	631	590	546
210								362	469	524	540	496
200								278	396	441	492	460
190								219	335	383	446	427
180								172	286	335	403	397
170								141	240	294	357	365
160								120	198	259	314	332
150								104	167	226	274	294
140								94.8	147	186	237	256
130								90.0	136	170	213	229
120								85.3	127	149	187	189
110									12.4	12.4	12.4	

ELECTRON DENSITY

PUERTO RICO 60 W 22 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL	S			A	A	A	A					A
HMIN	112	110	110					249	277	304	269	266
HMAX	396	385	390					429	433	442	393	367
SHMAX	2529	2425	2553					1537	1415	1328	1279	1160
KM												
450										1697		
440									1555	1697		
430								1446	1555	1679		
420								1441	1540	1634		
410								1423	1508	1564		
400	1846							1391	1458	1466	1938	
390	1842	1876	2032					1346	1386	1341	1935	
380	1823	1873	2021					1280	1304	1191	1900	
370	1787	1853	1988					1210	1204	1019	1819	1938
360	1732	1813	1934					1133	1080	814	1695	1925
350	1660	1747	1851					1041	931	608	1519	1866
340	1573	1669	1750					939	781	403	1316	1757
330	1458	1566	1631					834	631	229	1073	1604
320	1341	1446	1493					726	477	112	814	1394
310	1230	1329	1354					608	310	46.5	540	1143
300	1131	1208	1204					497	179		310	834
290	1027	1096	1080					380	83.8		152	477
280	917	971	946					262	30.9		71.4	179
270	834	867	820					170			12.4	49.6
260	748	774	716					83.8				
250	685	694	636					12.4				
240	633	631	573									
230	586	578	528									
220	548	536	491									
210	511	497	462									
200	477	462	437									
190	443	429	415									
180	414	403	389									
170	381	377	366									
160	340	345	335									
150	291	313	303									
140	253	276	269									
130	231	238	238									
120	205	222	221									
110		12.4	49.6									

ELECTRON DENSITY

PUERTO RICO 60 W 23 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S					
HMIN	259	226	226	233	215	261	248	109	109	109	109	109
HMAX	361	327	337	365	350	383	379	297	312	336	363	356
SHMAX	1045	946	784	753	593	539	683	967	1508	1912	2458	2404
KM												
390						735						
380						735	854					
370	1786			1004		725	850				2032	
360	1785			1002		702	834				2031	2128
350	1756			986	754	667	807				2012	2123
340	1679		1167	951	749	619	772			1697	1971	2094
330	1555	1583	1161	899	731	557	716			1694	1907	2039
320	1383	1574	1131	834	702	477	650		1669	1675	1814	1951
310	1143	1529	1076	745	661	385	573		1668	1637	1704	1846
300	875	1447	996	643	608	294	477	1191	1649	1582	1570	1712
290	573	1327	889	524	547	198	362	1186	1603	1509	1446	1570
280	286	1162	767	389	469	107	240	1162	1526	1425	1316	1416
270	112	960	625	274	389	54.8	127	1117	1423	1316	1191	1257
260	12.4	679	477	161	294		65.7	1050	1298	1191	1073	1111
250		335	298	83.8	198		12.4	969	1143	1061	960	960
240		112	143	43.3	112			865	975	931	854	820
230		40.2	49.6		63.8			735	820	807	770	707
220					33.2			590	691	691	694	622
210								432	562	590	622	557
200								298	456	516	553	508
190								219	371	446	477	464
180								168	304	383	411	417
170								135	246	330	356	375
160								114	205	286	302	327
150								99.8	171	248	262	276
140								93.4	149	211	226	231
130								88.6	137	183	201	208
120								83.8	128	166	184	157
110								40.2	71.4	83.8	112	71.4

ELECTRON DENSITY

PUERTO RICO 60 W 23 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL				A	A	A	A					
HMIN	110	109	107		109	109		234	280	262	305	293
HMAX	344	364	377		365	369		391	412	397	437	419
SHMAX	2166	2493	2597		2098	2030		1432	1312	1191	1102	1230
KM												
440											1500	
430											1494	
420									1555		1461	1727
410									1555		1400	1713
400								1555	1541	1555	1307	1666
390								1555	1509	1549	1191	1586
380			2161					1545	1456	1518	1050	1471
370		2128	2155		1815	1697		1516	1384	1461	896	1324
360		2126	2126		1813	1691		1470	1291	1370	716	1159
350	2161	2104	2074		1793	1670		1404	1179	1262	524	960
340	2157	2057	1993		1752	1633		1331	1050	1131	348	754
330	2120	1978	1895		1691	1581		1228	875	982	198	508
320	2042	1882	1771		1597	1509		1107	698	814	90.5	286
310	1907	1760	1620		1490	1427		975	524	625	43.3	127
300	1752	1626	1462		1376	1330		834	335	432		53.1
290	1574	1487	1291		1253	1221		679	170	262		
280	1362	1341	1111		1107	1119		540	12.4	127		
270	1182	1182	975		971	1004		375		54.8		
260	1004	1034	847		844	875		219				
250	865	903	739		729	745		112				
240	770	781	657		634	631		49.6				
230	698	686	596		548	540						
220	638	615	548		483	454						
210	588	551	511		432	389						
200	536	497	486		389	330						
190	487	446	456		355	282						
180	435	398	417		323	244						
170	378	353	373		292	209						
160	327	314	331		262	179						
150	286	274	293		235	154						
140	260	238	253		207	134						
130	229	216	219		181	122						
120	206	204	205		165	115						
110	60.0	143	161		71.4	40.2						

ELECTRON DENSITY

PUERTO RICO 60 W 24 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								A				
HMIN	281	244	207	238	291	313	228	110	110	107	109	109
HMAX	387	351	326	394	431	443	389	290	312	338	394	369
SHMAX	1109	925	840	718	596	553	853	1031	1128	1350	2293	2167
KM												
450						735						
440					735	735						
430					735	724						
420					729	700						
410					711	661						
400				794	682	613					1500	
390	1697			793	643	547	960				1500	
380	1689			784	590	477	955				1491	
370	1645			765	527	403	937				1474	1727
360	1565	1528		734	462	310	904				1448	1719
350	1446	1528		696	380	226	860				1412	1693
340	1291	1503		648	302	149	805			1096	1367	1642
330	1096	1437	1240	590	219	88.3	739			1092	1307	1575
320	875	1341	1235	527	143	44.9	665		1119	1079	1240	1497
310	608	1201	1206	454	83.8		582		1119	1055	1171	1404
300	362	1004	1150	382	47.2		487		1107	1017	1096	1301
290	161	794	1068	310			398	1393	1076	973	1013	1184
280		573	949	233			302	1380	1033	922	931	1073
270		310	820	167			219	1341	977	863	854	960
260		127	679	104			143	1274	910	800	781	847
250		49.6	508	60.0			88.3	1186	841	724	722	747
240			348	12.4			52.2	1065	762	650	664	665
230			198				12.4	896	679	580	616	596
220			90.5					698	590	524	569	545
210			30.9					477	508	472	524	505
200								327	417	422	484	474
190								229	342	377	438	443
180								165	280	335	394	407
170								127	229	290	344	366
160								106	189	245	302	327
150								92.1	155	207	259	286
140								82.8	131	171	222	240
130								77.9	122	149	196	215
120								72.9	115	136	184	198
110								12.4	40.2	112	127	60.0

ELECTRON DENSITY

PUERTO RICO 60 W 24 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A			A	A	A	A				
HMIN	109	108	108	108	108			290	288	328	278	281
HMAX	372	362	384	359	359			450	427	452	399	401
SHMAX	2414	2236	2432	2241	1925			1508	1344	1397	1484	1309
KM												
460										1876		
450								1500		1875		
440								1493		1853		
430								1472	1669	1799		
420								1436	1662	1712		
410								1385	1632	1593		1786
400								1318	1577	1446	2128	1785
390			1969					1240	1492	1260	2111	1767
380	2063		1967					1152	1388	1050	2054	1719
370	2063	1907	1949					1050	1254	834	1957	1640
360	2045	1906	1911	1907	1697			928	1096	573	1818	1531
350	2002	1891	1843	1898	1690			804	931	348	1650	1394
340	1932	1853	1768	1869	1664			667	767	161	1425	1221
330	1830	1793	1678	1819	1619			540	590	26.3	1175	1004
320	1708	1705	1555	1741	1555			417	403		875	774
310	1570	1601	1433	1646	1465			274	209		540	557
300	1431	1474	1298	1531	1362			143	90.5		262	286
290	1274	1353	1131	1407	1251			12.4	21.7		97.2	112
280	1096	1216	990	1278	1096						26.3	
270	949	1080	865	1155	960							
260	824	946	754	1019	834							
250	716	820	665	896	716							
240	637	716	594	774	634							
230	579	625	540	670	560							
220	529	557	497	573	495							
210	494	503	463	508	437							
200	462	459	428	451	389							
190	432	417	392	410	344							
180	401	381	353	373	302							
170	368	345	310	335	262							
160	331	310	272	301	231							
150	293	270	223	269	198							
140	260	229	195	237	157							
130	229	201	177	207	141							
120	207	188	169	188	134							
110	127	97.2	127	127	112							

ELECTRON DENSITY

PUERTO RICO 60 W 25 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							B	A	A	A	A	
HMIN	265	218	239	296	291	289	290		108	110	111	109
HMAX	381	312	379	454	413	434	377		313	313	345	346
SHMAX	1198	875	737	733	611	697	552		975	1200	1744	1894
KM												
460				794								
450				793								
440				785		814						
430				769		813						
420				742	814	804						
410				708	813	784						
400				665	802	754						
390	1727			613	776	720						
380	1726		875	547	735	667	896					
370	1706		870	477	684	601	891					
360	1653		853	396	615	532	869					
350	1566		822	318	532	437	829				1393	1555
340	1446		779	240	454	344	770				1392	1553
330	1291		727	167	362	255	688				1382	1536
320	1111	1420	657	107	262	173	585		917	1096	1361	1504
310	896	1419	582	62.9	161	97.2	446		917	1095	1327	1458
300	679	1398	500	26.3	71.4	53.1	240		909	1084	1281	1394
290	417	1348	417			5.5	12.4		891	1060	1234	1323
280	143	1265	327						860	1018	1173	1229
270	49.6	1164	240						820	966	1104	1124
260		1019	152						774	903	1022	1016
250		814	83.8						716	834	917	907
240		508	12.4						655	754	807	804
230		219							594	679	691	709
220		26.3							527	608	599	636
210									462	535	521	573
200									389	477	452	514
190									316	417	400	462
180									251	362	354	408
170									194	318	314	362
160									154	278	276	314
150									127	237	240	272
140									114	207	210	237
130									107	185	191	213
120									102	165	173	198
110									83.8	12.4		40.2

ELECTRON DENSITY

PUERTO RICO 60 W 25 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL						A	B					
HMIN	110	110	109	110	110	110		260	288	280	269	260
HMAX	341	352	351	361	360	356		392	413	402	382	361
SHMAX	1951	2129	2093	2100	1885	1675		1196	1235	1273	1065	1013
KM												
420									1612			
410									1610	1697		
400								1473	1591	1697		
390								1473	1548	1678	1612	
380								1458	1480	1632	1611	
370				1697				1421	1383	1558	1587	1640
360		1786	1846	1697	1640	1555		1363	1265	1458	1528	1640
350	1815	1785	1845	1688	1631	1552		1277	1127	1341	1433	1617
340	1815	1771	1829	1662	1602	1531		1175	939	1175	1298	1555
330	1797	1737	1786	1620	1555	1492		1061	735	1004	1143	1456
320	1734	1682	1702	1562	1483	1430		917	508	754	939	1324
310	1658	1593	1607	1480	1399	1349		774	310	508	716	1119
300	1555	1496	1487	1383	1296	1258		619	143	310	477	875
290	1433	1388	1341	1280	1186	1143		446	26.3	112	262	643
280	1303	1274	1208	1175	1065	1027		274			112	389
270	1159	1164	1154	1061	931	903		127			12.4	161
260	1016	1038	1034	939	807	786		12.4				
250	885	917	903	824	691	679						
240	774	814	781	726	599	582						
230	679	724	670	643	527	492						
220	608	643	594	573	472	426						
210	550	573	531	514	428	362						
200	511	514	486	462	389	310						
190	477	462	446	417	355	256						
180	435	417	410	373	321	215						
170	394	373	375	335	286	176						
160	354	341	342	300	255	150						
150	314	315	313	266	219	125						
140	274	282	286	231	183	111						
130	240	248	250	205	159	106						
120	222	223	223	187	148	100						
110	40.2	40.2	127	60.0	40.2	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 26 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL			A	A	A		A	A	A			
HMIN	241	219	218	218	197	240			110	108	109	108
HMAX	352	319	322	344	353	354			323	339	362	365
SHMAX	1011	736	612	588	499	440			1381	1884	2290	2331
KM												
370											1786	2032
360	1583				679	661					1785	2028
350	1583			794	678	660					1775	1998
340	1558			792	665	647				1612	1750	1939
330	1499		1027	779	634	617			1446	1605	1711	1846
320	1404	1265	1026	750	585	578			1445	1584	1654	1727
310	1274	1250	1004	706	527	521			1427	1543	1584	1584
300	1096	1200	953	649	459	446			1385	1483	1501	1433
290	896	1107	875	580	389	362			1316	1416	1404	1291
280	643	990	767	500	318	270			1229	1341	1301	1127
270	389	834	643	417	248	189			1119	1249	1201	993
260	179	643	492	327	189	112			990	1153	1096	875
250	65.7	446	348	240	140	60.0			847	1050	993	774
240		251	209	135	106	3.1			704	928	885	694
230		104	97.2	65.7	78.9				573	807	774	631
220		12.4	26.3	12.4	56.5				484	688	667	582
210					41.5				423	573	573	544
200					8.9				375	484	492	508
190									335	417	429	473
180									300	366	372	434
170									266	323	325	389
160									232	282	286	344
150									195	244	250	300
140									164	214	219	255
130									141	191	197	222
120									129	171	181	207
110									12.4	127	40.2	143

ELECTRON DENSITY

PUERTO RICO 60 W 26 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A				A	B	A	A	A		
HMIN	109	110	109	106	110		110	239	271	278	270	262
HMAX	365	368	360	361	374		387	399	409	385	385	375
SHMAX	2503	2773	2594	2620	2456		2104	1607	1480	1205	1455	1177
KM												
410									1786			
400								1756	1776			
390							1756	1747	1743	1876	2032	
380					2032		1752	1717	1686	1871	2027	1876
370	2294	2430		2327	2030		1735	1665	1605	1827	1991	1870
360	2289	2422	2500	2327	2014		1704	1591	1495	1741	1920	1824
350	2255	2387	2481	2312	1979		1658	1490	1367	1604	1812	1732
340	2188	2326	2424	2271	1926		1598	1376	1221	1429	1669	1598
330	2079	2232	2329	2204	1846		1519	1240	1027	1240	1490	1420
320	1948	2122	2190	2107	1754		1427	1096	834	1004	1265	1167
310	1786	1985	2032	1990	1646		1330	946	625	716	1004	917
300	1612	1820	1826	1846	1528		1208	774	417	417	735	643
290	1429	1631	1623	1685	1386		1080	608	219	179	446	375
280	1257	1446	1404	1501	1240		949	462	71.4	26.3	179	179
270	1065	1240	1201	1321	1096		824	335				60.0
260	931	1034	1004	1143	939		704	209				
250	804	875	820	960	794		585	97.2				
240	707	754	691	794	679		487	12.4				
230	629	643	590	667	582		403					
220	562	565	524	567	503		329					
210	508	497	473	497	451		272					
200	465	446	438	446	405		223					
190	428	415	411	407	362		183					
180	397	391	391	372	318		152					
170	365	370	368	339	282		124					
160	331	344	339	310	250		101					
150	290	307	307	282	219		88.3					
140	245	272	272	248	187		81.0					
130	215	229	237	214	159		76.2					
120	202	206	211	194	148		71.4					
110	40.2	40.2	179	170	12.4		12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 27 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							S	A	A	A	A	A
HMIN	255	253	222	208	235	230	260				105	110
HMAX	362	338	338	355	350	349	356				336	347
SHMAX	1070	977	1068	838	743	563	582				1778	1982
KM												
370	1815											
360	1814			1096			875					
350	1779			1093	1027	774	872					1697
340	1692	1786	1446	1072	1018	768	853				1528	1693
330	1555	1769	1439	1027	993	749	818				1525	1672
320	1362	1700	1411	967	949	716	767				1509	1620
310	1143	1581	1361	883	893	669	694				1477	1566
300	854	1404	1287	784	818	608	608				1427	1483
290	573	1167	1197	667	726	532	497				1361	1389
280	335	875	1080	551	596	446	362				1282	1285
270	127	540	903	437	462	348	229				1196	1157
260	44.9	198	716	335	286	251	12.4				1096	1034
250			508	240	135	152					975	917
240			286	161	49.6	65.7					847	794
230			77.6	102		3.1					729	688
220				56.5							625	608
210				12.4							540	540
200											472	482
190											425	438
180											385	397
170											347	358
160											313	321
150											279	289
140											244	256
130											209	227
120											192	207
110											181	40.2

ELECTRON DENSITY

PUERTO RICO 60 W 27 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	B			A						
HMIN	116	110		110	110	109	111	259	280	268	270	281
HMAX	356	353		351	372	375	398	394	393	413	392	399
SHMAX	2135	2187		2086	2110	1743	1799	1240	1063	1304	1059	917
KM												
420										1583		
410										1582		
400							1500	1500	1555	1564	1473	1290
390							1496	1499	1554	1524	1473	1281
380					1583	1473	1480	1481	1528	1462	1455	1249
370					1583	1471	1450	1443	1470	1376	1411	1195
360	1938	1969		1876	1575	1454	1408	1385	1379	1274	1341	1115
350	1933	1967		1876	1556	1419	1354	1304	1265	1143	1249	1016
340	1899	1947		1862	1525	1367	1279	1208	1111	982	1127	875
330	1823	1899		1825	1483	1291	1199	1096	939	794	960	716
320	1737	1818		1761	1425	1205	1115	946	735	625	774	557
310	1631	1722		1677	1355	1107	1004	794	508	446	573	389
300	1501	1606		1567	1274	1004	889	625	310	298	375	198
290	1356	1474		1446	1191	889	767	417	127	170	198	77.6
280	1212	1324		1312	1111	784	655	240		83.8	77.6	
270	1065	1127		1171	1013	688	551	97.2		21.7	3.1	
260	931	990		1019	917	601	462	12.4				
250	807	847		875	826	534	389					
240	698	726		742	735	481	335					
230	615	634		634	643	440	286					
220	551	567		553	557	409	251					
210	503	513		489	477	380	219					
200	462	469		438	403	348	190					
190	427	435		399	351	310	161					
180	395	405		368	310	262	132					
170	365	372		335	277	219	103					
160	327	341		300	246	187	80.1					
150	286	310		270	212	161	70.5					
140	248	259		237	176	137	67.5					
130	230	222		204	157	123	64.5					
120	205	208		186	147	115	61.5					
110		60.0		83.8	40.2	49.6						

ELECTRON DENSITY

PUERTO RICO 60 W 28 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								A				
HMIN	267	258	246	231	231	237	229	115	109	109	110	107
HMAX	388	354	347	349	333	339	324	290	325	336	370	374
SHMAX	872	670	624	612	477	364	397	668	978	1364	1989	2151
KM												
390	1240											
380	1233											1528
370	1203										1446	1527
360	1149	1143									1441	1517
350	1068	1140	1027	875							1426	1497
340	971	1114	1021	868	716	573				1096	1400	1466
330	834	1057	990	844	716	568	608		794	1094	1363	1424
320	679	969	931	804	706	549	607		793	1083	1311	1371
310	524	847	854	747	685	515	597		785	1061	1252	1305
300	362	698	729	670	660	471	576		770	1027	1188	1232
290	209	524	596	582	622	410	546	794	744	985	1115	1151
280	90.5	310	462	477	540	342	503	788	709	933	1031	1065
270	30.9	112	286	353	432	262	439	772	675	875	943	978
260		26.3	127	240	310	179	362	745	635	807	854	885
250			44.9	127	170	90.5	262	712	595	735	764	802
240				56.5	71.4	30.9	127	661	555	665	672	716
230							12.4	573	516	594	601	636
220								467	480	527	534	567
210								353	446	472	472	508
200					•			262	403	425	432	456
190								198	351	385	400	417
180								161	292	350	371	382
170								130	240	316	339	350
160								108	202	282	306	319
150								95.9	161	250	262	289
140								91.6	134	221	226	255
130								87.3	123	195	198	224
120								77.6	116	170	186	208
110									71.4	112	83.8	161

ELECTRON DENSITY

PUERTO RICO 60 W 28 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A				A	A	A	A	A		A
HMIN	108	108	109	108	108		114	252	275		287	279
HMAX	374	368	357	346	342		403	391	416		424	402
SHMAX	2174	2191	2206	1987	2046		1965	1217	1247		1086	964
KM												
430											1393	
420									1473		1392	
410							1393		1470		1372	1420
400							1393	1446	1450		1332	1419
390							1387	1446	1411		1271	1398
380	1727						1373	1435	1355		1187	1348
370	1725	1815					1353	1404	1274		1084	1265
360	1708	1809	2063				1324	1354	1182		946	1164
350	1673	1783	2057	2000	1786		1288	1279	1073		774	1019
340	1612	1736	2024	1995	1785		1245	1191	931		608	834
330	1546	1669	1965	1962	1772		1194	1084	754		446	643
320	1455	1574	1874	1897	1739		1143	960	573		310	462
310	1352	1458	1756	1804	1688		1073	814	403		170	286
300	1240	1341	1612	1682	1612		996	661	251		83.8	143
290	1107	1212	1446	1524	1523		917	508	135		30.9	71.4
280	993	1080	1260	1341	1411		834	348	49.6			12.4
270	885	949	1065	1175	1283		747	198				
260	784	834	889	1004	1131		661	71.4				
250	698	726	743	814	990		580					
240	622	643	619	643	861		492					
230	557	573	535	524	735		417					
220	508	519	482	446	634		342					
210	467	473	440	394	553		270					
200	435	438	409	362	487		205					
190	406	409	384	335	438		152					
180	379	381	362	314	401		115					
170	352	352	340	292	371		91.3					
160	319	319	318	265	345		79.4					
150	291	286	292	226	324		71.1					
140	262	259	256	202	305		67.7					
130	227	228	225	191	290		64.4					
120	209	208	204	183	255		61.0					
110	161	143	127	143	112							

ELECTRON DENSITY

PUERTO RICO 60 W 29 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							A	A	A		A	A
HMIN	255	233	222	211	251	265	258	109		108	105	
HMAX	352	322	327	335	341	364	343	319		337	327	
SHMAX	820	771	663	506	301	419	394	1001		1519	1587	
KM												
370						679						
360	1528					678						
350	1527				643	663	716					
340	1492			716	639	631	715			1473		
330	1400	1446	982	714	596	585	699			1468	1446	
320	1269	1445	978	700	540	516	661	1072		1442	1442	
310	1096	1415	957	671	462	432	608	1066		1395	1422	
300	854	1341	921	628	380	335	524	1042		1324	1384	
290	573	1224	868	573	286	229	417	1004		1240	1326	
280	310	1050	784	497	198	127	298	954		1119	1248	
270	112	834	679	417	112	54.8	127	889		990	1160	
260	43.3	508	551	327	49.6		26.3	802		861	1061	
250		240	389	240				704		742	949	
240		71.4	219	161				596		634	834	
230			83.8	83.8				487		548	716	
220				46.5				398		482	616	
210								318		432	524	
200								258		389	459	
190								215		350	409	
180								179		310	369	
170								151		270	332	
160								129		227	300	
150								110		174	266	
140								96.3		147	234	
130								87.4		139	202	
120								68.9		133	179	
110								40.2		127	164	

ELECTRON DENSITY

PUERTO RICO 60 W 29 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A	A						A		A
HMIN	112				109	110	110	250	269	269	281	253
HMAX	340				364	365	365	394	399	386	397	374
SHMAX	1713				2026	1792	1629	1404	1355	1144	1166	1233
KM												
400								1583	1727		1786	
390								1582	1716	1756	1775	
380								1564	1679	1748	1725	1846
370					1669	1555	1528	1526	1616	1703	1632	1843
360					1667	1553	1526	1468	1526	1615	1493	1810
350					1653	1537	1509	1385	1416	1487	1321	1739
340	1555				1623	1505	1475	1285	1269	1321	1143	1626
330	1545				1578	1452	1418	1167	1096	1119	896	1478
320	1515				1512	1374	1348	1038	917	896	643	1291
310	1465				1437	1286	1265	903	716	643	403	1050
300	1385				1341	1191	1164	754	492	417	198	774
290	1291				1240	1096	1061	608	286	209	77.6	492
280	1186				1131	975	949	446	112	83.8		262
270	1073				1016	861	834	310	12.4	12.4		112
260	949				885	754	704	161				49.6
250	834				767	652	573	12.4				
240	716				661	565	456					
230	616				565	489	362					
220	540				489	429	292					
210	477				432	375	236					
200	430				385	327	195					
190	395				348	286	168					
180	369				316	250	147					
170	341				288	216	130					
160	310				262	187	116					
150	279				232	161	104					
140	240				196	137	92.2					
130	211				172	122	79.4					
120	179				155	112	68.6					
110					112	49.6	12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 30 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	S											A
HMIN	239	229	207	218	249	239	246	113	109	108	110	105
HMAX	340	310	292	340	346	372	357	327	324	343	355	373
SHMAX	1037	725	546	481	359	424	421	916	1260	1656	1893	2174
KM												
380						540						1815
370						540						1815
360						534	557				1640	1800
350					625	519	555			1528	1637	1767
340	1815			698	621	495	545			1527	1617	1715
330	1788			690	597	465	523	834	1143	1511	1577	1642
320	1707			667	557	422	495	832	1142	1477	1509	1555
310	1572	1500		630	495	372	462	822	1131	1418	1427	1446
300	1383	1473	1050	579	424	316	417	803	1108	1348	1330	1327
290	1143	1383	1049	508	335	257	367	774	1071	1265	1222	1162
280	875	1254	1027	427	248	198	310	739	1024	1143	1131	1019
270	573	1050	968	344	152	138	240	698	967	1038	1016	889
260	310	754	883	262	75.6	80.7	143	648	903	917	907	767
250	112	446	767	179	12.4	49.6	44.9	590	834	794	804	670
240	12.4	127	590	104		6.8		534	754	679	707	582
230		12.4	362	56.5				465	661	573	625	519
220			112	12.4				396	565	495	540	477
210			40.2					329	469	432	471	440
200								274	382	380	411	408
190								227	320	339	362	373
180								187	274	298	318	331
170								156	240	262	281	290
160								134	213	231	235	235
150								117	182	209	205	198
140								100	156	165	193	184
130								90.1	135	141	185	174
120								76.4	121	133	172	168
110									83.8	104	49.6	161

ELECTRON DENSITY

PUERTO RICO 60 W 30 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A		A	A	A	A	A		A	A		A
HMIN		108		110	115	110	117	250	260	280	272	284
HMAX		357		358	368	378	372	377	372	397	394	402
SHMAX		2010		2024	1895	1829	1646	1350	1088	1173	1018	1046
KM												
410												1500
400										1555	1473	1500
390										1550	1471	1481
380						1555	1555	1640	1500	1520	1444	1434
370				1555	1551	1555	1635	1500	1467	1389	1359	
360		1907		1815	1551	1532	1543	1609	1482	1385	1296	1251
350		1899		1809	1532	1499	1512	1561	1437	1285	1179	1127
340		1862		1783	1499	1452	1464	1490	1367	1157	1050	960
330		1794		1736	1452	1379	1385	1404	1262	1004	875	754
320		1690		1669	1379	1295	1291	1291	1154	814	679	540
310		1568		1582	1295	1208	1196	1157	1004	608	477	310
300		1416		1471	1208	1124	1096	990	834	417	286	143
290		1257		1341	1119	1004	975	814	661	198	127	54.8
280		1080		1204	1013	885	861	625	446	12.4	60.0	
270		931		1065	907	764	742	389	179			
260		781		889	804	643	631	179	12.4			
250		670		754	698	540	524	12.4				
240		582		619	608	454	437					
230		519		524	534	383	355					
220		469		452	469	335	286					
210		433		405	411	300	232					
200		404		368	357	266	184					
190		380		335	314	229	143					
180		357		308	278	179	114					
170		332		288	240	151	89.6					
160		301		240	202	138	77.6					
150		262		214	175	126	70.4					
140		231		198	159	123	66.9					
130		213		190	152	118	63.5					
120		201		182	144	112	60.0					
110		112		97.2		12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 31 MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL							A	A			A	
HMIN	255	243	280	268	230	235	229	110	107	109	110	110
HMAX	371	321	418	362	331	333	299	298	326	333	387	392
SHMAX	940	584	781	597	626	573	458	910	1276	1330	2154	2363
KM												
420			1027									
410			1021									
400			999									1815
390			960								1640	1815
380	1473		903								1636	1802
370	1473		834	1072							1616	1771
360	1453		735	1072							1580	1721
350	1399		625	1048							1521	1650
340	1311		508	990	1096	917				1240	1453	1555
330	1191	1240	375	896	1096	916			1050	1238	1367	1456
320	1034	1240	251	781	1076	897			1048	1209	1270	1341
310	834	1211	152	643	1019	854			1039	1143	1178	1229
300	608	1133	88.3	462	934	786	1004	1004	1022	1068	1084	1119
290	362	1004	49.6	274	820	707	992	1000	994	966	982	1004
280	198	814		112	679	608	949	982	960	905	875	896
270	90.5	590		26.3	508	497	875	947	917	841	784	802
260	43.3	286			335	362	735	901	870	781	698	709
250		65.7			161	209	446	841	822	716	622	636
240					67.6	83.8	143	770	766	650	557	569
230					3.1		12.4	679	709	587	503	522
220								585	643	529	462	477
210								477	565	477	427	443
200								362	467	422	399	411
190								274	380	371	375	381
180								219	304	328	350	352
170								179	251	293	317	321
160								149	213	256	276	289
150								127	186	222	234	254
140								108	161	189	207	219
130								94.2	141	160	192	194
120								86.8	127	148	181	182
110								12.4	97.2	60.0	112	49.6

ELECTRON DENSITY

PUERTO RICO 60 W 31 MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A	A	A							
HMIN	109	110	110	110	110	110	116	259	264	277	289	284
HMAX	403	389	367	368	374	368	366	415	399	402	406	406
SHMAX	2489	2653	2509	2309	2203	1850	1419	1444	1074	982	942	855
KM												
420								1393				
410	2063							1392		1316	1420	1290
400	2062							1381	1341	1315	1414	1285
390	2042	2260						1358	1333	1299	1378	1251
380	1996	2250			1969			1324	1306	1261	1304	1186
370	1924	2215	2327	2161	1967	1640	1446	1278	1258	1195	1208	1084
360	1819	2156	2321	2151	1947	1634	1443	1221	1188	1119	1084	960
350	1695	2072	2288	2111	1906	1611	1422	1156	1105	1016	931	820
340	1555	1963	2228	2040	1843	1571	1381	1073	993	885	754	679
330	1401	1831	2139	1929	1756	1505	1320	971	875	735	557	508
320	1254	1669	2032	1799	1656	1429	1247	865	716	573	362	335
310	1080	1483	1889	1652	1524	1341	1133	745	562	417	189	189
300	946	1301	1705	1483	1371	1240	1027	619	417	251	83.8	83.8
290	820	1096	1512	1301	1212	1107	907	487	262	127	12.4	40.2
280	716	946	1301	1127	1065	990	781	335	143	40.2		
270	629	794	1096	946	903	861	643	198	54.8			
260	569	679	896	794	754	729	508	40.2				
250	522	590	729	667	608	606	398					
240	486	524	596	565	508	508	304					
230	459	477	508	497	429	417	249					
220	435	443	446	446	375	351	214					
210	411	415	407	411	339	307	187					
200	383	389	375	381	315	279	161					
190	350	366	352	354	295	256	136					
180	305	344	333	328	275	236	114					
170	266	321	310	302	251	214	95.3					
160	242	295	272	274	222	193	85.7					
150	227	262	231	246	189	173	81.3					
140	216	235	208	216	166	154	78.1					
130	208	215	194	194	155	139	74.9					
120	201	202	185	180	147	129	71.7					
110	127	60.0	60.0	49.6	49.6	12.4						

AVERAGE ELECTRON DENSITY — KP BELOW 4.5

PUERTO RICO — 60 W — MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
COUNT	25	26	27	26	26	27	24	19	22	23	22	22
HMIN	267	250	243	243	251	253	250	111	109	109	109	109
NMAX	1371	1230	999	854	765	693	735	1005	1253	1485	1681	1898
HMAX	384	359	366	376	374	382	363	326	326	346	358	366
SHMAX	922	786	725	650	542	524	531	1057	1361	1792	2110	2331
SHINF	4789	4254	3544	3058	2700	2479	2604	3891	4895	5982	6851	7684
KM												
950	133	105	88.5	80.4	71.0	68.2	64.7	74.7	91.7	120	144	169
900	170	134	114	103	91.1	87.5	83.1	95.8	118	154	184	217
850	218	172	146	132	117	112	107	123	151	198	237	278
800	279	221	186	169	149	143	136	158	193	253	303	356
750	356	282	238	216	191	183	174	202	247	324	388	455
700	453	360	303	275	243	233	222	258	316	413	494	580
650	574	457	385	348	308	294	282	328	403	526	628	736
600	719	576	484	437	386	367	355	415	510	664	792	927
550	888	717	601	540	478	451	441	521	641	830	987	1153
500	1069	875	730	651	577	539	536	644	795	1021	1207	1404
490	1105	908	756	673	597	556	556	671	827	1061	1253	1455
480	1140	940	782	694	616	571	575	697	861	1100	1298	1506
470	1173	973	807	715	635	586	594	724	895	1141	1343	1556
460	1205	1004	832	736	653	600	613	751	928	1180	1388	1605
450	1235	1035	856	755	670	613	630	777	962	1219	1431	1652
440	1261	1065	879	772	687	623	647	804	996	1258	1472	1697
430	1285	1092	900	787	701	632	663	830	1029	1294	1512	1739
420	1304	1118	918	799	712	639	677	855	1061	1329	1548	1777
410	1319	1141	934	809	721	643	690	879	1093	1362	1582	1811
400	1327	1159	946	814	725	644	700	902	1122	1391	1611	1839
390	1327	1174	955	815	725	642	707	922	1150	1417	1635	1862
380	1315	1183	958	811	719	635	711	941	1175	1439	1653	1876
370	1289	1185	956	802	707	622	711	957	1197	1456	1665	1883
360	1246	1178	945	785	690	604	705	970	1216	1468	1669	1877
350	1182	1159	925	759	665	578	691	980	1230	1473	1664	1856
340	1093	1123	895	722	632	545	669	985	1239	1470	1645	1817
330	976	1069	852	672	590	505	637	985	1243	1457	1612	1761
320	836	996	795	613	540	456	593	980	1239	1430	1564	1684
310	676	902	723	543	479	399	539	967	1226	1390	1500	1592
300	505	782	637	464	412	337	470	946	1200	1336	1423	1484
290	340	645	538	381	339	273	394	916	1160	1268	1333	1364
280	195	494	432	300	266	212	312	877	1106	1186	1235	1236
270	95.7	342	321	221	191	160	223	830	1041	1095	1128	1105
260	37.8	207	222	150	121	111	142	772	965	998	1021	978
250	11.0	105	143	94.2	59.6	71.2	78.4	704	876	895	912	857
240	.4	44.5	77.0	50.3	27.0	37.6	36.1	624	781	792	806	751
230		14.4	36.4	22.7	8.4	13.7	13.8	534	683	693	710	661
220		1.4	8.9	7.8	3.5	4.9	6.1	443	587	604	625	591
210			3.1	2.0	1.5	1.5	4.7	353	496	528	551	535
200					.3		4.0	277	414	464	489	486
190							3.4	215	344	406	435	443
180							3.0	168	287	355	387	402
170							2.6	136	239	306	342	361
160							2.3	115	201	262	301	319
150							2.1	101	170	225	262	278
140							1.9	91.7	146	193	228	241
130							1.7	85.8	132	170	203	215
120							1.2	78.4	122	155	185	194
110							.5	17.0	48.0	75.7	61.7	72.4

AVERAGE ELECTRON DENSITY — KP BELOW 4.5

PUERTO RICO — 60 W — MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
COUNT	24	23	23	24	24	20	14	24	25	24	26	26
HMIN	110	109	109	109	110	109	121	251	267	282	285	275
NMAX	2012	2071	2048	1922	1738	1654	1485	1470	1426	1461	1489	1446
HMAX	365	366	371	369	370	371	378	397	419	420	414	396
SHMAX	2363	2426	2458	2302	2119	1955	1682	1313	1263	1151	1107	995
SHINF	8039	8269	8235	7723	7022	6620	5872	5458	5285	5273	5308	5072
KM												
950	178	184	187	174	158	151	141	152	164	168	167	149
900	229	237	239	223	203	194	181	195	210	215	214	191
850	293	303	307	285	260	249	232	250	269	276	274	244
800	375	388	393	365	333	319	297	320	343	352	351	312
750	480	497	502	467	425	407	379	409	438	449	447	399
700	612	633	640	596	542	519	483	520	555	569	568	507
650	776	804	811	755	687	659	612	657	699	716	715	641
600	978	1012	1021	951	865	829	769	821	869	889	890	801
550	1216	1259	1268	1182	1074	1029	952	1010	1058	1081	1085	985
540	1268	1312	1321	1232	1119	1072	991	1050	1096	1120	1125	1024
530	1320	1367	1376	1282	1165	1116	1031	1090	1134	1159	1165	1063
520	1374	1422	1431	1334	1212	1160	1071	1129	1172	1197	1204	1101
510	1428	1478	1486	1386	1259	1205	1111	1169	1209	1234	1243	1140
500	1482	1534	1542	1438	1306	1250	1152	1208	1244	1269	1280	1178
490	1537	1591	1597	1490	1353	1294	1192	1246	1277	1303	1316	1215
480	1591	1647	1652	1541	1399	1339	1231	1283	1308	1334	1349	1251
470	1644	1702	1706	1592	1445	1382	1269	1318	1337	1362	1380	1285
460	1696	1755	1759	1642	1490	1424	1306	1350	1361	1386	1407	1317
450	1747	1807	1809	1689	1532	1465	1341	1380	1382	1405	1430	1346
440	1795	1857	1856	1734	1573	1503	1373	1406	1398	1419	1449	1371
430	1840	1903	1900	1776	1610	1538	1402	1428	1408	1427	1461	1393
420	1880	1945	1940	1814	1644	1569	1428	1445	1410	1426	1463	1409
410	1917	1982	1974	1847	1673	1597	1449	1456	1404	1415	1455	1416
400	1947	2014	2002	1874	1697	1619	1465	1459	1383	1389	1432	1413
390	1971	2038	2023	1895	1715	1635	1475	1453	1348	1347	1391	1396
380	1986	2055	2035	1908	1725	1644	1478	1433	1296	1285	1329	1360
370	1992	2061	2036	1910	1727	1644	1472	1396	1226	1200	1242	1305
360	1983	2053	2022	1899	1717	1632	1456	1343	1139	1094	1128	1228
350	1959	2027	1988	1871	1694	1606	1424	1272	1039	967	990	1125
340	1914	1977	1933	1823	1653	1563	1376	1185	919	824	834	997
330	1846	1899	1856	1754	1595	1501	1314	1080	782	670	662	844
320	1754	1797	1756	1664	1518	1425	1241	962	636	509	485	675
310	1640	1676	1637	1559	1427	1336	1154	832	488	348	320	502
300	1514	1540	1502	1435	1323	1236	1057	688	345	211	188	339
290	1375	1394	1357	1301	1208	1123	948	535	218	103	90.0	202
280	1230	1242	1207	1167	1088	1010	838	379	116	35.9	29.7	96.0
270	1090	1090	1061	1031	966	895	723	227	52.8	8.8	1.0	33.9
260	960	952	923	899	846	779	610	95.1	19.0	.5		5.4
250	840	829	800	780	734	673	502	31.6	9.0			
240	738	726	698	678	640	579	401	9.0	2.7			
230	655	642	618	597	560	497	327	2.0				
220	587	577	556	534	495	429	267					
210	532	524	505	484	442	372	218					
200	484	481	464	441	396	324	178					
190	444	441	428	402	357	280	145					
180	405	404	394	366	321	241	119					
170	369	367	361	330	287	207	98.9					
160	332	329	325	295	254	178	85.2					
150	296	291	289	262	223	154	76.4					
140	261	256	254	232	196	137	71.0					
130	232	228	227	210	177	127	66.8					
120	211	212	211	195	164	119	62.2					
110	51.1	64.0	66.7	65.6	45.7	29.7	4.4					

AVERAGE ELECTRON DENSITY — KP ABOVE 4.5

PUERTO RICO — 60 W — MAY 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
COUNT	5	5	4	4	4	4	4	4	4	3	4	1
KP												8
DATE												12
HMIN	279	238	252	273	261	277	218	110	108	108	109	109
NMAX	1695	1483	999	904	868	727	808	1040	1070	964	1397	492
HMAX	394	347	389	420	412	422	403	366	351	353	392	415
SHMAX	1125	986	811	768	764	582	771	1256	1356	1236	1996	1166
SHINF	5906	5169	3630	3316	3211	2631	3049	4189	4372	3956	5935	2553
KM												
950	173	119	106	109	97.3	87.2	87.8	92.2	88.0	78.0	136	55.7
900	222	153	136	140	125	112	113	118	113	100	174	71.5
850	284	196	174	179	160	143	144	151	145	128	223	91.6
800	364	251	222	228	204	183	184	194	186	164	286	117
750	464	321	283	291	261	233	235	247	237	210	365	149
700	591	410	358	368	331	294	297	314	303	268	465	190
650	747	521	449	461	417	369	373	396	385	341	588	239
600	934	658	553	570	520	456	461	496	485	431	738	297
550	1150	823	667	687	634	548	558	609	606	538	911	363
540	1195	859	689	711	658	566	577	633	632	562	948	376
530	1240	896	711	733	681	584	596	657	658	586	985	390
520	1286	933	733	756	704	602	615	681	686	611	1023	403
510	1332	972	754	777	727	618	634	705	713	636	1061	416
500	1376	1010	774	796	749	633	651	729	741	661	1098	428
490	1420	1050	791	815	770	648	667	752	769	687	1135	440
480	1462	1089	805	831	790	660	681	775	798	713	1171	451
470	1502	1129	815	846	809	671	692	796	826	739	1205	462
460	1540	1168	820	856	825	679	700	817	853	764	1238	471
450	1574	1207	822	862	839	683	707	836	880	790	1270	479
440	1605	1245	818	864	850	683	712	854	907	814	1298	485
430	1631	1281	813	860	858	676	714	869	931	838	1323	489
420	1651	1315	803	848	862	662	714	883	955	860	1345	492
410	1665	1347	790	828	859	640	714	895	977	881	1363	492
400	1661	1376	777	799	847	610	710	905	996	900	1376	491
390	1638	1402	760	760	826	573	706	914	1012	917	1383	489
380	1590	1423	741	710	794	532	698	921	1025	930	1384	487
370	1515	1437	730	654	748	487	687	926	1035	942	1377	483
360	1414	1445	719	595	695	436	670	929	1041	949	1360	478
350	1297	1444	705	524	630	384	649	930	1042	951	1332	471
340	1148	1429	697	455	556	338	623	928	1039	950	1294	463
330	950	1396	686	386	477	299	591	925	1030	943	1244	455
320	739	1341	669	315	395	259	551	919	1013	922	1184	446
310	551	1266	642	259	316	215	505	913	993	885	1118	436
300	384	1159	605	208	243	188	447	903	965	840	1047	426
290	233	1027	558	168	175	159	388	891	927	785	969	415
280	115	857	496	128	126	127	309	871	883	740	888	405
270	36.6	662	427	89.0	81.5	94.0	231	838	830	693	812	394
260	8.0	456	348	54.0	53.0	58.0	162	791	774	646	738	385
250		273	262	28.7	26.3	25.0	121	733	713	593	667	377
240		131	171	3.1	12.4	11.6	94.8	658	649	543	602	368
230		43.8	94.2				68.6	567	585	495	546	361
220		2.4	39.0				52.2	465	515	454	498	355
210			7.7				40.2	360	446	418	456	350
200							31.0	276	372	381	421	345
190							25.2	212	305	347	390	340
180							20.9	167	246	317	360	334
170							17.8	137	202	287	326	322
160							15.8	117	175	254	290	310
150							14.1	103	152	220	251	278
140							12.7	94.0	134	189	218	237
130							11.7	87.4	123	165	195	215
120							10.9	78.9	115	151	183	202
110							10.2	27.4	65.5	105	95.5	49.6

AVERAGE ELECTRON DENSITY — KP ABOVE 4.5

PUERTO RICO — 60 W — MAY 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
COUNT	2	2	3	3	3	5	2	6	4	4	4	5
HMIN	109	109	108	109	109	110	112	265	276	308	305	292
NMAX	1232	1338	1467	1446	1348	1413	1407	1310	1476	1595	1755	1585
HMAX	384	395	455	388	370	379	375	425	435	445	444	426
SHMAX	1825	1983	2355	1966	1714	1864	1598	1330	1333	1239	1375	1238
SHINF	5300	5755	6492	6046	5518	5850	5567	5025	5496	5738	6326	5709
KM												
950	120	134	174	139	125	138	131	153	185	211	229	191
900	154	171	223	178	160	178	168	197	237	271	294	244
850	197	220	284	228	205	228	216	252	303	346	376	313
800	252	282	361	293	263	291	276	322	387	442	479	400
750	322	360	456	373	336	372	352	410	493	563	609	509
700	410	458	571	475	428	474	449	520	624	711	770	645
650	519	579	705	602	542	600	569	654	783	890	962	811
600	651	726	850	755	682	752	716	812	968	1095	1183	1005
590	681	758	880	789	713	785	748	846	1008	1137	1229	1047
580	711	791	912	824	745	820	782	881	1048	1181	1276	1089
570	742	825	944	860	778	855	816	916	1088	1224	1322	1131
560	774	860	977	896	811	892	851	951	1128	1267	1368	1174
550	806	896	1010	934	846	929	888	987	1168	1310	1414	1217
540	839	931	1044	972	881	966	925	1022	1208	1352	1459	1260
530	872	968	1078	1011	916	1004	962	1057	1247	1392	1501	1301
520	905	1004	1112	1049	952	1042	1000	1091	1284	1430	1542	1343
510	939	1040	1147	1088	989	1080	1039	1124	1320	1465	1580	1382
500	973	1076	1181	1127	1025	1118	1077	1156	1354	1498	1615	1419
490	1006	1112	1215	1165	1061	1156	1115	1186	1385	1527	1646	1454
480	1038	1146	1248	1203	1097	1192	1153	1213	1412	1552	1672	1486
470	1069	1180	1281	1239	1132	1227	1190	1238	1435	1571	1692	1514
460	1100	1211	1311	1274	1166	1261	1225	1259	1454	1584	1702	1537
450	1128	1240	1340	1307	1198	1292	1260	1277	1467	1588	1699	1555
440	1154	1267	1367	1337	1228	1320	1291	1289	1474	1577	1682	1564
430	1177	1290	1390	1364	1256	1346	1321	1295	1472	1546	1652	1564
420	1197	1309	1411	1387	1281	1367	1347	1294	1455	1490	1601	1551
410	1213	1323	1427	1406	1302	1383	1369	1285	1420	1407	1532	1520
400	1225	1332	1439	1419	1318	1395	1387	1266	1367	1302	1445	1465
390	1231	1336	1445	1427	1330	1399	1399	1235	1292	1169	1334	1385
380	1231	1332	1445	1426	1334	1395	1406	1193	1203	1020	1193	1285
370	1222	1320	1435	1417	1330	1381	1404	1138	1093	856	1030	1159
360	1204	1297	1413	1400	1318	1357	1389	1071	967	667	867	1015
350	1177	1263	1375	1370	1293	1323	1361	995	832	491	707	854
340	1133	1216	1329	1326	1258	1278	1319	905	694	325	542	679
330	1084	1163	1270	1271	1209	1223	1262	810	550	193	387	497
320	1030	1097	1197	1203	1148	1161	1190	706	405	99.2	259	340
310	967	1023	1121	1126	1070	1089	1108	587	270	56.2	146	217
300	900	946	1037	1038	991	1012	1020	474	165	23.2	65.5	130
290	833	865	940	953	908	925	924	362	90.3	11.6	24.3	67.0
280	765	788	852	870	811	836	820	268	45.6		6.5	28.6
270	699	705	769	789	724	746	719	172	24.3			10.9
260	638	634	692	709	646	662	621	81.4	13.2			
250	583	576	625	640	573	586	525	11.6				
240	539	528	567	575	518	517	435					
230	499	490	522	521	469	459	353					
220	469	461	485	473	425	408	280					
210	443	439	453	438	389	367	226					
200	421	421	424	407	358	329	185					
190	401	404	396	381	328	293	154					
180	383	386	366	357	299	259	127					
170	363	363	334	332	269	227	109					
160	335	337	299	301	242	196	96.0					
150	302	309	261	269	213	171	87.2					
140	262	275	236	238	182	151	81.0					
130	228	246	214	212	164	140	76.9					
120	214	226	199	198	155	131	72.8					
110	55.8	96.3	100	72.2	67.2	28.4	6.2					

TABLES OF IONOSPHERIC DATA

FEBRUARY 1959 - NOVEMBER 1952

Table 1

Thule, Greenland (76.6°N, 68.7°W) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		---	270					----
01		(6.5)	270					(2.75)
02		(3.85)	270					(2.58)
03		(4.7)	265					----
04		(4.5)	270					----
05		(4.5)	280		---	----		(2.50)
06		---	270		---	----		----
07		(3.8)	260		---	----		----
08		(7.0)	260		127	----		(2.80)
09		(6.65)	265		<151	(1.90)		2.78
10		6.5	270		(131)	1.68		2.92
11	---	(7.2)	255	---	121	(1.62)		(2.85)
12		(7.2)	265		(127)	(2.05)		(2.70)
13		(7.0)	260		129	(1.75)		(2.85)
14		6.5	255		121	(1.50)		2.75
15		(6.7)	260		123	----		(2.72)
16		(6.2)	260		---	----		(2.62)
17		(6.35)	250		---	----		(2.60)
18		(5.75)	260					----
19		(6.7)	265					(2.70)
20		(6.9)	260					(2.65)
21		(5.6)	270					(2.50)
22		(5.3)	260					----
23		(6.1)	260					(2.62)

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 2

Point Barrow, Alaska (71.3°N, 156.8°W) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.0)					4.5	(2.60)
01		(4.65)					4.2	(2.70)
02		(4.55)					4.6	(2.65)
03		(4.7)					3.9	(2.60)
04		(4.1)					3.4	(2.45)
05		(4.5)					2.6	(2.50)
06		(4.05)					2.6	(2.40)
07		(4.4)					3.2	(2.40)
08		(4.5)					2.9	(2.60)
09		(6.0)						(2.75)
10		(6.5)						(2.85)
11		6.9						2.92
12		7.7						2.90
13		8.6						2.80
14		9.3						2.78
15		9.45						2.80
16		10.4						2.85
17		9.2						2.90
18		7.0						2.80
19		(5.9)					2.5	(2.88)
20		(4.5)					3.1	(2.80)
21		(4.5)					3.2	(2.70)
22		(4.3)					5.4	(2.70)
23		(4.25)					4.6	(2.70)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Fairbanks, Alaska (64.9°N, 147.8°W) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(2.3)					3.5	(2.50)
01		(3.4)					3.4	(2.50)
02		(3.3)					3.5	(2.40)
03		(3.65)					2.9	(2.35)
04		(2.85)					3.4	(2.35)
05		(3.3)					4.0	(2.38)
06		(3.7)					3.9	(2.48)
07		(3.5)					2.4	(2.60)
08		(5.0)			---	E		(2.85)
09		5.0			---	E		2.80
10		7.25		---	129	1.50		2.90
11		7.7			124	1.70		2.85
12		8.1			119	1.80		2.82
13		9.2			125	1.80		2.85
14		9.8			125	1.70		2.80
15		10.15			---	E		2.85
16		10.35			---	E		2.88
17		9.4						2.90
18		(7.3)						(2.80)
19		(5.0)						(2.75)
20		(4.1)					2.1	(2.85)
21		(3.45)					2.2	(2.75)
22		(2.9)					2.5	(2.62)
23		(2.85)					2.6	(2.70)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 4

Ft. Monmouth, New Jersey (40.4°N, 74.1°W) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>6.4	(270)					2.75
01		6.0	<285					2.70
02		5.8	<280					2.60
03		5.75	(270)					2.70
04		5.4	(270)					2.75
05		4.65	<275					2.60
06		(4.8)	(270)					2.75
07		6.6	260		---	----		3.05
08		9.7	230		121	2.70		3.15
09		11.5	230		115	3.10		3.15
10	---	12.2	220		111	3.40		3.00
11	---	>13.0	220	---	111	3.60		2.95
12	---	13.2	220		114	3.60		2.90
13	---	13.2	220		111	3.60		2.85
14	---	>13.0	225		111	3.45		2.80
15		13.0	230		115	3.20		2.82
16		12.8	230		119	2.80		2.90
17		12.2	235		<135	2.25		2.90
18		(11.45)	230					(2.92)
19		10.0	230					2.85
20		9.0	235					2.90
21		8.05	250					2.90
22		>7.0	250					2.80
23		6.8	(260)					2.78

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 5

Okinawa I. (26.3°N, 127.8°E) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(12.7)	235					(2.85)
01		(10.6)	240					(2.78)
02		9.3	240					2.88
03		7.6	235					2.90
04		6.5	220					3.00
05		5.2	220					2.80
06		4.4	(280)					2.70
07		6.2	280		---	----		2.80
08		11.0	235		<117	2.70		3.15
09		13.35	230		109	3.18		3.10
10		14.0	230		109	(3.60)		3.00
11		14.9	220		109	(3.90)		2.90
12		14.9	220		(109)	(4.00)	4.5	2.75
13	(345)	15.75	<220		107	(4.10)	4.4	2.70
14	(350)	16.0	220	---	(109)	----	4.3	2.65
15	340	16.65	220		109	(3.80)	>3.9	2.60
16	(335)	16.5	230		109	(3.40)	3.6	2.65
17		16.55	240		(115)	2.90	3.0	2.65
18		16.9	245					2.70
19		17.45	245					2.70
20		>18.15	260					(2.70)
21		(18.15)	230					(2.80)
22		(17.0)	220					(2.82)
23		(15.0)	230					(2.85)

Time: 135.0°E.
Sweep: 1.0 Mc to 25.0 Mc io 13.5 seconds.

Table 6

Talara, Peru (4.6°S, 81.3°W) February 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		12.8	230				3.8	2.80
01		11.5	230				4.0	2.85
02		10.25	225				3.9	2.98
03		9.2	220				4.0	3.10
04		7.85	230				3.7	3.10
05		6.3	230		---	----	3.8	3.10
06		5.2	250		---	----	4.0	2.90
07		8.9	265		123	2.40	4.0	2.85
08		12.2	<245		111	3.15	4.0	2.75
09		14.3	230		111	3.65	3.9	2.75
10		14.6	220		111	4.00	4.1	2.50
11		14.85	210		109	4.18	4.4	2.35
12		15.1	210		109	4.25		2.25
13	---	15.15	<210	---	109	4.20		2.25
14	---	15.0	200	---	109	4.10	4.6	2.28
15	---	14.7	210	---	109	4.00	4.2	2.25
16	---	14.6	225		109	3.70	4.0	2.20
17	---	13.8	240		112	3.25	4.3	2.20
18		(13.3)	265		(125)	2.60	4.5	(2.20)
19		12.7	305		---	----	3.2	(2.32)
20		(12.4)	370				1.9	(2.20)
21		>12.9	300				2.2	(2.40)
22		12.95	275				3.2	(2.50)
23		(13.0)	240				3.5	(2.65)

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 7

Point Barrow, Alaska (71.3°N, 156.8°W) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.3)	285				4.8	(2.88)
01		(4.3)	300				4.9	(2.80)
02		(4.4)	290				4.4	(2.80)
03		(4.45)	310				3.4	(2.75)
04		(4.4)	305				2.3	(2.65)
05		(4.4)	345				2.3	(2.60)
06		(4.6)	340				2.8	(2.65)
07		(4.6)	330				2.5	(2.70)
00	---	>4.8	335		---	---	3.0	(2.70)
09		(5.15)	310		---	---	3.6	(2.80)
10		5.8	310		---	---	3.0	2.80
11		(7.2)	275		---	---		(2.98)
12		7.75	(260)		---	---		2.92
13		9.1	265		---	---		2.88
14		10.1	250					2.85
15		10.0	250					2.90
16		10.15	240					3.00
17		8.55	250					2.95
18		(6.65)	265					2.90
19		(4.55)	280				>2.3	(2.80)
20		(4.4)	295				2.6	2.90
21		(4.3)	300				3.0	2.85
22		(4.45)	290				3.7	2.80
23		(4.0)	310				3.9	(2.65)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

5t. John's, Newfoundland (47.6°N, 52.7°W) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.8	<300					2.55
01		5.8	300					2.58
02		5.6	300					2.65
03		5.4	270					2.65
04		4.9	260					2.70
05		4.6	265					2.70
06		4.2	250					2.85
07		6.0	255		(133)	1.80		2.95
00		9.7	240		<131	2.50		3.05
09		12.4	240		(123)	2.90		3.10
10		13.2	235		119	3.20		3.00
11		14.0	235		119	3.30		3.00
12		13.8	235		121	3.35		2.90
13		13.85	240		121	3.22		2.88
14		13.6	240		120	3.00		2.85
15		13.2	240		(125)	2.60		2.85
16		12.8	240		<137	2.10		2.90
17		11.55	235					2.82
18		10.0	230					2.85
19		(8.5)	240					(2.80)
20		7.65	260					2.75
21		7.0	270					2.70
22		6.5	280					2.70
23		(6.0)	290					(2.60)

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9

Ft. Monmouth, New Jersey (40.4°N, 74.1°W) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	270					2.80
01		6.0	270					2.80
02		5.95	270					2.82
03		5.8	265					2.80
04		5.2	260					2.75
05		5.0	260					2.80
06		4.7	255					2.90
07		5.5	250					2.95
00		9.4	230		<129	2.50		3.20
09		12.2	230		121	3.00		3.05
10	---	14.0	225		117	3.30		3.05
11	---	14.3	225		117	>3.50		2.95
12	---	14.1	230		115	3.60		2.85
13	---	13.8	230		117	3.50		2.80
14		13.7	230		115	3.38		2.80
15		13.6	235		119	3.10		2.85
16		13.15	235		(121)	2.70		2.85
17		12.75	235					2.85
18		11.35	230					2.90
19		9.95	230					2.85
20		8.65	240					2.85
21		7.6	250					2.80
22		7.1	255					2.85
23		6.4	260					2.85

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 10

Grand Bahama I. (26.6°N, 78.2°W) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.6	250					2.95
01		5.9	250					2.95
02		5.2	240					3.05
03		4.5	250					2.90
04		4.4	275					2.68
05		4.5	275					2.70
06		4.5	260					2.85
07		6.95	250		<171	1.82		3.10
00		10.5	230		111	2.75		3.30
09		12.0	230		109	3.20		3.20
10		12.85	220		105	3.60	3.7	3.05
11	---	13.1	215	---	105	3.82	4.0	2.90
12	---	13.4	220		105	3.95	4.0	2.80
13	---	13.0	225		106	3.92	4.0	2.72
14		12.6	220		107	3.80		2.70
15		12.7	230		<111	3.60		2.65
16		12.4	240		(111)	3.25		2.70
17		12.15	240		<119	2.60		2.85
18		11.35	230				2.8	2.88
19		9.65	225				3.0	2.85
20		8.9	240				2.7	2.85
21		8.0	240				1.9	2.85
22		7.1	250				2.4	2.82
23		6.8	250				2.1	2.85

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Talara, Peru (4.6°S, 81.3°W) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.75	250				3.9	2.80
01		10.1	240				4.4	2.90
02		9.0	245				4.3	2.95
03		8.05	240				4.1	3.05
04		6.9	230				3.9	3.20
05		5.4	230				3.8	3.15
06		4.9	260		---	----	2.2	2.70
07		9.2	260		121	2.50	4.2	2.80
00		12.2	240		110	3.25	4.5	2.80
09		13.5	230		110	3.75	4.2	2.62
10		14.1	220		109	4.10	5.0	2.48
11	---	14.2	210	---	109	4.30	4.9	2.30
12	(490)	14.2	210	---	109	4.40		2.25
13	500	14.1	205	6.6	107	4.40		2.10
14	490	14.2	200	6.4	109	4.30	4.6	2.05
15	(490)	14.1	205	(6.2)	107	4.05	4.6	2.10
16	(500)	14.0	230	---	109	3.80	5.0	2.20
17	---	(13.25)	250		111	3.40	4.2	(2.20)
18		13.1	270		<122	2.70	4.4	2.20
19		12.9	305		---	----	4.4	2.30
20		(12.9)	360				3.1	(2.20)
21		(13.8)	350				2.2	(2.25)
22		(13.5)	(310)				2.6	(2.35)
23		12.55	270				3.8	(2.68)

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 12

Chimbote, Peru (9.1°S, 78.6°W) January 1959

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>9.9	320				2.1	2.65
01		>9.0	275				2.0	2.80
02		8.5	265				2.0	2.80
03		8.0	250					3.05
04		6.25	235					3.12
05		5.5	235				1.9	3.10
06		6.25	290		(129)	(1.55)	2.1	2.80
07		10.15	260		(121)	2.70	4.0	2.80
00		12.5	245		119	3.40	4.5	2.65
09		13.25	230		117	3.90	6.7	2.55
10		14.0	220		117	4.18	7.2	2.35
11	---	13.9	220		117	4.35	8.2	2.20
12	---	>13.3	215	---	<117	(4.40)	7.7	2.10
13	530	13.05	215	6.6	117	(4.38)	5.8	2.05
14	530	12.2	210	6.4	118	(4.25)	4.6	2.10
15	500	12.3	215	6.1	117	4.00		2.12
16	(535)	12.5	240		119	3.75	4.5	2.15
17		12.4	260		119	3.30	3.7	2.15
18		>12.0	285		<130	2.60	4.5	2.10
19		11.6	330				2.2	2.20
20		>10.4	410					2.00
21		>11.0	410					(2.10)
22		>11.0	380				2.0	(2.25)
23		10.5	<350				2.4	(2.35)

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 13

Resolute Bay, Canada (74.7°N, 94.9°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.4	260		---	---		(2.5)
01		6.8	250		---	---		(2.5)
02		6.2	260		---	---		(2.5)
03		(5.7)	260		---	---		---
04		(5.8)	270		---	---	1.8	---
05		5.0	270		---	---	3.2	---
06		5.4	280		---	1.4	2.0	---
07		6.3	270		---	1.5	3.0	(2.6)
08		(7.0)	260		130	1.8	2.2	(2.7)
09		7.1	260		115	2.0		2.6
10		8.0	250		110	2.2		2.7
11		8.0	260		110	2.3		2.6
12		8.1	250		110	2.3		2.7
13		8.0	250		115	2.3		2.7
14		8.0	260		110	2.2		2.55
15		8.4	270		120	2.0		2.6
16		8.0	270		130	1.8		2.55
17		8.1	260		---	1.6		2.55
18		8.0	260		---	1.4		(2.4)
19		6.8	270		---	1.3		---
20		7.0	270		---	---		(2.4)
21		6.8	260		---	---		2.5
22		7.0	250		---	---		(2.5)
23		7.0	270					(2.4)

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14

Tromso, Norway (69.7°N, 19.0°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.3)	(350)				4.7	----
01		(5.2)	360				4.0	----
02		(6.6)	340				4.0	----
03		(6.6)	330		---	----	4.0	----
04		(5.7)	305		---	----	3.2	----
05		6.1	300		---	----	3.0	2.50
06		(6.2)	285		---	1.40	2.3	(2.50)
07	---	7.8	260		110	1.90		2.60
00	---	8.5	255		120	2.20		2.70
09	245	10.2	255		140	2.45		2.70
10	250	11.8	250		120	2.65		2.70
11	245	11.8	(250)		125	2.70		2.70
12	245	12.9	(255)		130	2.70		2.70
13	240	13.0	(250)		125	2.70		2.70
14	245	12.0	250		135	2.50		2.70
15	(250)	11.0	240		110	2.20		2.75
16	---	10.9	245		145	1.90		2.85
17		(9.4)	250		---	1.70	2.9	----
18		(5.6)	255		---	----	3.0	----
19		(6.2)	290		---	----	3.6	----
20		(6.1)	300				3.8	----
21		(5.3)	320				4.9	----
22		(5.9)	(340)				4.2	----
23		(5.6)	340				4.2	----

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 15

Kiruna, Sweden (67.8°N, 20.3°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.4	350				4.7	(2.4)
01		7.0	345				4.6	(2.4)
02		7.0	330				3.2	2.4
03		7.0	310				3.0	2.5
04		6.6	305		---	---	2.8	2.5
05		6.0	285		---	---	2.2	2.6
06		6.0	280		---	1.7		2.6
07		7.0	260		---	1.8		2.8
08		8.2	250		---	2.1		2.8
09		10.2	245		120	2.4		2.8
10		11.4	245	---	120	2.6		2.8
11		12.8	245		110	2.6		2.8
12		12.9	240		115	2.7		2.8
13		13.0	240		115	2.6		2.8
14		12.6	240		115	2.4		2.8
15		11.8	245		---	2.1		2.8
16		11.5	240		---	1.8		2.8
17		11.0	235		---	1.6	3.0	2.8
18		9.0	240				3.2	2.8
19		7.2	250				3.6	2.7
20		6.4	280				3.5	2.6
21		6.2	305				3.8	2.5
22		(6.0)	340				4.0	(2.6)
23		(5.4)	340				5.0	(2.4)

Time: 15.0°E.
Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 16

Sodankyla, Finland (67.4°N, 26.6°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.5)	345				4.3	(2.50)
01		(5.1)	350				4.2	(2.50)
02		---	330				4.2	----
03		---	320				3.7	----
04		---	310				3.8	----
05		---	300				3.7	----
06		(4.7)	300		---	E	3.8	(2.60)
07		6.9	270		---	E	3.9	2.80
00		7.6	260		---	2.10	4.2	2.85
09		9.5	250		115	2.50	4.4	2.05
10		10.8	250		120	2.60	4.5	2.80
11		11.6	250		115	2.80	4.4	2.85
12		12.8	245		120	2.85	4.4	2.85
13		13.6	240		115	2.85	4.4	2.85
14		13.2	240		115	2.70	4.4	2.85
15		12.8	250		115	2.50	4.2	2.85
16		12.6	240		130	2.20	4.2	2.90
17		11.8	240		---	1.65	4.0	2.90
18		11.0	245		---	E	4.0	2.90
19		9.6	245		---	---	4.0	2.85
20		8.3	260				4.0	2.80
21		6.9	290				4.0	2.70
22		(6.3)	320				4.0	----
23		(6.0)	350				4.2	(2.50)

Time: 30.0°E.
Sweep: 1.4 Mc to 22.0 Mc in 8 minutes, automatic operation.

Table 17

Lulea, Sweden (65.6°N, 22.1°E) October 1958*

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.6)	(340)				3.0	(2.2)
01		(5.8)	(330)				2.8	(2.3)
02		(5.6)	(305)				<2.2	(2.3)
03		(5.4)	320				1.9	(2.3)
04		(6.1)	280				<1.5	(2.4)
05		(5.8)	275		---	---	<1.4	(2.5)
06		(6.3)	260		155	1.8		2.6
07		7.7	260		150	2.2		2.7
08		8.5	250		130	2.5		2.8
09		10.1	(250)		130	2.8		2.8
10		10.8	250		125	2.9		2.7
11		11.3	245		120	3.0		(2.7)
12		12.0	240		120	3.0		(2.7)
13		11.7	240		120	2.9		(2.7)
14		11.8	240		130	2.7		(2.7)
15		11.5	240		130	2.4		(2.85)
16		10.5	250		150	2.0		2.8
17		9.6	250		---	---	<1.8	2.8
18		9.8	240				<1.5	2.8
19		8.3	250				<1.9	2.7
20		(6.2)	280				2.3	(2.55)
21		(5.6)	300				<2.4	(2.5)
22		(5.4)	335				3.1	(2.4)
23		(5.6)	330				2.8	(2.3)

Time: 15.0°E.
Sweep: 0.65 Mc to 25.0 Mc in 5 minutes, automatic operation.
*Observations taken 18 days only.

Table 18

Lycksele, Sweden (64.6°N, 18.8°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.9	330				3.3	2.4
01		5.4	330				3.2	2.4
02		5.6	300				3.1	2.4
03		5.6	300				3.1	2.4
04		5.2	280		---	E	2.8	2.4
05		5.0	260		---	E	2.5	2.4
06		5.6	265		---	E	2.8	2.6
07		7.4	250		120	1.80	2.9	2.7
08		8.5	240		110	2.20	2.8	2.8
09	---	11.0	240	---	105	2.50	2.8	2.8
10	---	11.9	240	---	105	2.70	3.0	2.8
11	---	12.8	235	---	105	2.80	3.3	2.8
12		12.6	235		105	2.85	3.2	2.8
13		12.9	235		105	2.75	3.1	2.8
14		12.8	235		105	2.60	2.8	2.8
15		12.0	235		105	2.30	2.8	2.8
16		12.0	235		115	1.80	2.8	2.8
17		11.2	235		---	E	2.6	2.8
18		10.2	235		---	E	2.7	2.8
19		8.9	235		---	----	2.8	2.7
20		7.3	245				2.6	2.6
21		6.5	260				3.0	2.4
22		6.1	295				2.6	2.4
23		5.8	305				3.2	2.4

Time: 15.0°E.
Sweep: 0.33 Mc to 20.0 Mc in 3 minutes.

Table 19

Nurmijarvi, Finland (60.5°N, 24.6°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.2						2.55
01		5.8						2.50
02		5.3						2.32
03		(4.9)						(2.40)
04		(5.1)						(2.55)
05		4.6						2.50
06		(4.8)						(2.50)
07		6.6						2.75
08		7.9				---		2.78
09		10.2				---		2.80
10		11.7				---		2.80
11		12.2				---		2.75
12		12.3				---		2.70
13		13.5				---		2.70
14		12.2				---		2.70
15		11.9				---		2.70
16		12.2				---		2.78
17		11.9						2.75
18		11.7						2.75
19		10.5						2.80
20		9.1						2.75
21		7.8						2.62
22		7.0						2.60
23		6.3						2.50

Time: 30.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 1 minute.

Table 20

Oslo, Norway (60.0°N, 11.1°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	305					2.40
01		5.5	310					2.40
02		5.1	320					2.30
03		5.1	315					2.40
04		4.9	300					2.55
05		4.8	275				1.5	2.55
06		4.6	270		---	----		2.55
07		6.9	255		---	1.80	2.9	2.70
08		8.4	250		115	2.20		2.80
09	(250)	10.6	250		110	2.65		2.75
10	---	11.6	250		110	2.95		2.80
11	---	11.3	245		115	3.10	3.1	2.70
12	---	11.8	240		110	3.15		2.70
13	---	12.8	240		110	3.15		2.70
14	240	11.7	250		110	3.00		2.70
15	245	12.4	250		110	2.80		2.70
16		12.3	250		115	2.40		2.70
17		11.9	250		---	1.85		2.70
18		11.1	250					2.70
19		10.3	245				2.4	(2.75)
20		7.3	250					(2.55)
21		6.6	260					(2.55)
22		6.5	275					2.50
23		6.4	300					2.55

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 21

Upsala, Sweden (59.8°N, 17.6°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.5	310				3.4	2.4
01		5.2	320				3.1	2.4
02		4.9	310				3.1	2.4
03		4.8	295				3.1	2.4
04		4.8	290				3.5	2.5
05		4.6	280		---	----	3.5	2.5
06		5.6	260		---	E	3.4	2.7
07		7.5	250		140	1.90	4.5	2.8
08		9.6	240		120	2.45	4.7	2.9
09	---	10.9	240	-----	115	2.80	5.0	2.8
10	(325)	12.8	240	(5.40)	110	2.95	4.8	2.8
11	---	13.5	240	----	110	3.10	5.1	2.8
12	(300)	13.2	235	(5.65)	110	3.15	5.3	2.7
13	---	13.0	240	----	110	3.00	5.3	2.7
14	---	13.3	240	-----	115	2.85	3.5	2.8
15	---	13.0	240	-----	115	2.55	3.2	2.8
16		12.7	240		130	2.20	3.0	2.8
17		11.5	240		---	E	3.1	2.85
18		10.3	235		---	E	3.0	2.8
19		9.2	240		---	----	2.7	2.8
20		7.8	240				3.2	2.8
21		6.7	250				3.1	2.6
22		6.4	285				3.0	2.5
23		6.1	290				3.1	2.5

Time: 15.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 22

Inverness, Scotland (57.4°N, 4.2°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	305				<1.5	2.35
01		6.0	300				(1.2)	2.35
02		>5.5	320				<1.9	2.40
03		5.5	310				<1.6	2.45
04		5.4	295				<1.4	2.50
05		4.9	270				<1.5	2.45
06		5.2	265		---	-----	<1.4	2.50
07		6.9	250		110	1.90		2.85
08		9.0	250		110	2.45		2.90
09		11.0	240		115	2.80		2.80
10		11.7	240		110	3.05		2.80
11		12.3	240		110	3.25		2.80
12		12.6	235		110	3.30		2.75
13		13.0	235		110	3.25		2.75
14		12.8	240		110	3.20		2.70
15		12.4	245		110	2.90		2.75
16		12.3	250		110	2.50		2.80
17		12.0	245		110	2.00		2.80
18		10.6	240		---	----	<1.6	2.75
19		9.7	235				<1.6	2.75
20		(7.6)	245				<1.7	2.70
21		>7.0	250				<1.6	----
22		>7.0	265				<1.6	2.40
23		>6.6	295				<1.6	----

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 23

De Bilt, Holland (52.1°N, 5.2°E) October 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	6.3						2.65
01	340	6.0						2.65
02	(340)	5.8						2.60
03	(335)	5.6						2.65
04	<310	5.3						2.70
05	(305)	4.7						2.75
06	(280)	6.0	---	---				2.90
07	260	9.0	230	---	---	---		3.10
08	(245)	11.0	230	---	---	---		3.10
09	---	12.4	225	---	---	---		3.10
10	---	>13.1	225	---	---	---		2.95
11	---	>13.1	225	---	---	---		2.85
12	---	>13.2	225	---	---	---		2.85
13	---	>12.9	230	---	---	---		2.85
14	---	>12.9	230	---	---	---		2.85
15	---	>12.8	240	---	---	---		2.90
16	(225)	12.5	240	---				2.95
17	240	11.5	---	---				3.00
18	250	10.4						3.00
19	250	9.0						3.00
20	260	8.0						2.85
21	290	7.2						2.75
22	300	6.8						2.80
23	320	6.4						2.75

Time: 0.0°.
Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 24

Slough, England (51.5°N, 0.6°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>6.8	300				<1.3	2.40
01		6.6	300				<1.4	2.40
02		6.2	300				<1.4	2.40
03		6.0	295				<1.4	2.45
04		(5.8)	265				1.3	(2.55)
05		5.1	240				2.2	2.50
06		5.8	260		---	<1.60	2.2	2.60
07		8.3	245		130	2.25		2.95
08		11.0	235		110	2.80	2.8	2.95
09		(11.8)	235		105	3.10	3.3	2.90
10		13.2	230		105	3.30	4.0	2.80
11		13.4	230		105	3.45	3.6	2.80
12		(13.6)	230		105	3.50		2.75
13		13.5	230		105	3.50		2.70
14		(13.2)	235		105	3.35		(2.65)
15		(13.1)	240		105	3.05		2.75
16		(12.8)	240		120	2.60		2.75
17		(12.2)	240		---	1.95	2.5	2.80
18		(11.1)	240		---	-----	2.4	2.80
19		>9.5	240				2.4	(2.80)
20		(8.6)	235				<1.8	(2.70)
21		(7.5)	250				<1.6	2.60
22		(7.0)	250				<1.6	2.50
23		6.9	260				<1.6	2.40

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 25

Ottawa, Canada (45.4°N, 75.9°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.6	290					---
01		6.4	290					---
02		6.3	290					---
03		5.8	290					(2.5)
04		5.8	290					---
05		5.2	280		---	---		---
06		6.1	270		---	1.7		---
07		8.5	250		120	2.3		(2.95)
08		10.9	240		110	3.0		(3.1)
09		12.6	230		110	3.2		(3.0)
10		13.4	230	---	110	3.6		2.9
11	---	13.6	230	---	110	3.8		2.85
12	---	13.6	230	---	110	3.8		2.7
13	---	13.6	230	---	110	3.8		2.7
14	---	13.4	230	---	110	3.6		2.7
15		13.2	240		110	3.2		(2.7)
16		13.0	240		110	2.9		(2.8)
17		12.5	240		120	2.1		---
18		11.8	240		---	2.0		---
19		10.2	250		---	---		---
20		9.3	250		---	---		---
21		8.5	260					---
22		8.0	270					(2.6)
23		7.2	270					---

Time: 75.0°W.
Sweep: 1.0 Mc to 20.0 Mc in 16 seconds.

Table 26

Wakkanai, Japan (45.4°N, 141.7°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.9	295					2.55
01		6.8	295					2.55
02		6.8	290					2.55
03		6.5	300					2.55
04		6.5	290					2.55
05		6.6	285					2.60
06		9.2	245			2.10		2.90
07		12.1	235			2.60	3.1	3.05
08		13.7	235			3.10	3.5	3.00
09		14.3	230			3.40	3.5	2.95
10	---	14.2	230	---		3.50	4.0	(2.85)
11	---	14.3	230	---		3.60		2.80
12		13.8	230			3.60		2.75
13		13.6	235			3.50	3.5	2.75
14		13.3	240			3.40	3.5	2.75
15		13.0	245			2.95	3.5	2.75
16		12.6	245			2.50	3.5	2.80
17		11.8	245				3.5	2.75
18		10.3	245					2.70
19		9.2	250					2.80
20		8.6	255					2.75
21		7.8	270					2.70
22		7.5	270					2.65
23		7.3	290					2.60

Time: 135.0°E.
Sweep: 1.0 Mc to 20.7 Mc in 1 minute.

Table 27

Monte Capellino, Italy (44.6°N, 9.0°E) October 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		7.0						2.60
01		7.4						2.56
02		7.1						2.54
03		6.8						2.61
04		6.5						2.65
05		6.4						2.64
06		6.2						2.62
07		8.6				1.9		2.84
08		11.6				2.6		2.86
09		14.0				3.1		2.83
10		14.4				3.4		2.74
11		14.6				3.6		2.60
12		14.5				3.7		2.59
13		14.4				3.6		2.56
14		14.0				3.5		2.53
15		14.0				3.3		2.62
16		13.5				2.9		2.66
17		13.4				2.2		2.71
18		12.4						2.72
19		11.0						2.56
20		8.9						2.68
21		8.4						2.58
22		8.0						2.68
23		7.4						2.72

Time: 15.0°E.

Table 28

Akita, Japan (39.7°N, 140.1°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.5	300					2.65
01		7.3	295					2.65
02		7.0	295					2.65
03		6.7	295					2.60
04		6.5	290					2.55
05		6.4	300					2.55
06		9.1	245					3.00
07		12.0	240			2.75		3.05
00	---	13.9	240			3.25	3.6	3.00
09	(245)	14.4	240			3.50	4.0	2.90
10	(245)	14.6	240	---		3.70	4.0	2.80
11	---	14.6	240	---		3.70	4.2	2.75
12	---	14.2	240	---		3.75	4.0	2.70
13	---	14.0	240	---		3.70	3.8	2.60
14	---	13.7	245			3.55		2.65
15	---	13.4	245			3.20		2.70
16	---	12.9	250			2.70	3.0	2.75
17		12.1	250					2.80
18		10.8	250					2.80
19		9.5	255					2.75
20		8.8	250					2.75
21		8.5	260					2.70
22		8.1	280					2.75
23		7.6	290					2.65

Time: 135.0°E.
Sweep: 1.6° Mc to 20.0 Mc in 20 seconds.

Table 29

Tokyo, Japan (35.7°N, 139.5°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(7.8)	295					(2.65)
01		7.6	295					2.65
02		7.1	275					2.65
03		6.7	295					2.65
04		6.3	275					2.60
05		6.3	300					2.55
06		8.9	250			----		2.95
07		12.1	240			2.80		3.00
08		13.7	240			3.25	3.6	3.00
09		14.1	235			3.60	3.9	2.85
10		14.7	240			3.70	4.0	2.75
11	---	14.4	230			3.85	3.9	2.65
12	(330)	14.4	245			(3.85)		2.60
13	350	14.4	240			3.80	4.0	2.60
14	(330)	14.1	250			3.70		2.60
15	---	13.7	250			3.30	3.4	2.60
16	---	13.3	250			(2.80)	2.9	2.70
17		12.6	255			----	3.1	2.70
18		(11.1)	250				3.0	(2.75)
19		(9.8)	255				2.5	(2.70)
20		9.2	260					2.70
21		(9.1)	270					(2.70)
22		(8.8)	275					(2.70)
23		(8.1)	280					(2.70)

Time: 135.0°E.
Sweep: 1.0 Mc to 20.0 Mc in 20 seconds.

Table 30

Yamagawa, Japan (31.2°N, 130.6°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(10.4)	250					(2.80)
01		9.4	250					2.85
02		8.6	245					2.85
03		7.9	245					2.80
04		6.8	250					2.80
05		6.0	250					2.70
06		6.7	260			----		2.80
07		10.6	235			2.30	2.6	3.15
08		12.9	230			3.05	3.4	3.15
09		13.9	225			3.50	4.2	3.00
10		14.5	225			(3.75)	4.2	2.90
11		14.5	220			3.90	4.2	2.80
12		14.9	225			4.00	>4.7	2.70
13		15.0	225			4.00	4.2	2.70
14		(15.0)	230			3.90		(2.70)
15		14.9	240			3.60	3.6	2.65
16		14.4	240			3.20	3.7	2.70
17		14.0	250			2.45	3.5	2.80
18		13.4	250				3.5	2.85
19		12.5	250				3.2	2.75
20		12.4	250				2.7	2.70
21		(12.2)	250				2.9	(2.75)
22		(11.4)	250				2.9	(2.80)
23		(11.0)	250				2.3	(2.75)

Time: 135.0°E.
Sweep: 1.0 Mc to 20.0 Mc in 1 minute.

Table 31

Bunia, Belgian Congo (1.5°N, 30.2°E) October 1958

Time	h'F2	foF2	h'F1	foFi	h'E	foE	fEs	(M3000)F2
00	270	12.6						2.54
01	260	12.6						2.59
02	240	11.7					1.6	2.74
03	230	9.7					2.0	2.87
04	260	8.6			---	---	3.0	2.82
05	260	11.1	250	---	120	2.9	3.9	2.79
06	(265)	12.2	250	---	120	3.5	4.2	2.50
07	---	13.4	240	---	120	3.9		2.27
08	---	14.0	240	---	115	4.0		2.16
09	(450)	14.5	250	---	110	4.1		2.08
10	(465)	14.8	250	---	110	4.2		2.00
11	485	15.0	250	(7.0)	110	4.1		<2.04
12	510	15.0	250	---	115	4.0		<2.03
13	510	>14.6	245	---	115	3.6		2.00
14	550	>14.6	260	---	120	3.2	3.7	<1.98
15	530	>14.4	280	---	120	2.6	3.0	1.94
16	(340)	>14.4	345	---	---	---	2.4	<1.87
17	450	----						----
18	390	----						----
19	300	----						----
20	260	----						----
21	240	(12.7)						(2.23)
22	250	>12.0						<2.28
23	270	13.0						2.41

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 32

Leopoldville, Belgian Congo (4.4°S, 15.2°E) October 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	14.0						2.50
01	250	12.7						2.52
02	250	11.0						2.62
03	230	9.0					1.5	2.80
04	220	6.8					1.7	2.90
05	250	8.0	(250)	---	140	2.1	3.0	2.79
06	250	10.4	245	---	120	3.0	3.7	2.67
07	(250)	11.3	235	---	115	3.6	4.1	2.45
08	---	12.5	230	---	115	4.0		2.25
09	---	13.2	250	---	110	4.1		2.20
10	---	14.0	250	---	110	4.2		2.14
11	450	14.3	250	---	110	4.2		2.12
12	460	15.1	250	---	110	4.2		2.07
13	450	15.6	245	---	110	4.0		2.09
14	450	15.2	245	---	110	3.7		2.06
15	440	>15.0	250	---	120	3.3	3.8	2.08
16	420	14.9	270	---	120	2.6	3.0	2.11
17	320	>15.0	---	---			2.7	2.07
18	385	----					2.0	----
19	320	----					2.0	----
20	255	>17.0						<2.29
21	230	>17.0						(2.41)
22	230	16.8						<2.53
23	230	13.8						2.44

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 33

Elisabethville, Belgian Congo (11.6°S, 27.5°E) October 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	8.8						2.47
01	270	8.8					1.8	2.54
02	250	8.0					1.7	2.66
03	245	7.0					1.8	2.70
04	255	8.3			140	2.0	2.5	2.71
05	250	10.6	250	---	120	2.9	3.0	2.71
06	250	11.6	240	---	115	3.5		2.60
07	(260)	12.1	240	---	110	3.8		2.48
08	(320)	12.6	245	---	110	4.0		2.30
09	(400)	12.8	250	---	110	4.0		2.24
10	400	13.0	250	---	110	4.1		2.22
11	420	13.5	250	6.6	110	4.1		2.19
12	420	13.8	250	6.6	110	4.0		2.18
13	410	13.5	240	---	110	3.8	4.2	2.18
14	400	13.4	250	---	115	3.5	4.5	2.19
15	370	13.0	265	---	120	2.8	3.8	2.23
16	300	13.3	---	---			3.0	2.28
17	300	14.0					3.0	2.41
18	295	>13.8					2.6	<2.36
19	260	14.6						<2.52
20	250	14.2						<2.55
21	245	13.4						2.54
22	240	11.5						2.59
23	240	9.6						2.51

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 34

La Paz, Bolivia (16.5°S, 68.0°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(11.3)	265					(2.70)
01		11.4	235					2.82
02		9.1	225					2.90
03		8.6	235					2.88
04		7.9	230					2.90
05		7.1	230				2.3	3.08
06		7.35	260		---	----		2.88
07		11.0	250		115	2.75	3.1	3.00
08		13.3	235		111	3.35		2.85
09		14.8	230		111	(3.82)	5.0	2.65
10		15.3	220		106	(4.10)	6.9	2.42
11	---	>15.0	<220		---	----	8.0	(2.20)
12		>14.0	<220		---	----	7.7	(2.08)
13		(13.2)	(215)		---	----	7.7	(2.05)
14		(13.0)	<220		---	----	7.5	(2.05)
15		(13.0)	220		---	----	7.8	(2.10)
16		(13.0)	240		105	(3.60)	7.2	(2.08)
17		(12.85)	250		107	(3.15)	6.4	(2.05)
18		(12.2)	280		(120)	(2.40)	4.8	(2.05)
19		(11.4)	365					(2.00)
20		(9.7)	440					(1.95)
21		(10.1)	420					(2.10)
22		(10.5)	360				2.7	(2.20)
23		10.9	300				3.1	2.40

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 35

Townsville, Australia (19.3°S, 146.7°E) October 1958

Time	h'F2	foF2	h'F	foFi	h'E	foE	foEs	(M3000)F2
00		---	250					
01		>7.0	250					
02		>7.0	280					
03		>7.0	300					
04		>7.0	290					
05		>7.0	300					
06		---	275		140	2.00		
07		>11.5	250		110	2.95	3.2	----
08		>13.0	240		110	3.50	3.8	3.00
09		13.5	230		110	3.80	4.8	2.85
10		13.8	225		110	4.00	5.1	2.75
11		13.8	220		110	4.00	5.2	2.60
12		13.8	225		110	4.10	5.1	2.60
13		13.6	220		105	4.10	5.3	2.55
14		13.4	220		110	4.00	4.3	2.50
15		(13.0)	240		110	3.80	4.3	2.50
16		>12.0	245		110	3.50	4.0	(2.55)
17		>11.5	250		110	2.95	3.4	
18		----	285		130	(1.90)		
19		----	290				2.6	
20		----	300				2.0	
21		----	300					
22		----	280					
23		----	275					

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 36

Rarotonga I. (21.2°S, 159.8°W) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(11.5)	250					(2.60)
01		(10.1)	250					(2.40)
02		(9.9)	300					(2.40)
03		(9.8)	300					(2.40)
04		9.7	300					2.50
05		(10.2)	290		110	1.4		2.60
06		12.2	250		115	2.6		2.00
07		13.1	250		110	3.3	3.3	2.80
08		13.4	240		110	3.7		2.65
09	---	13.9	230		110	4.0		2.55
10	(390)	14.6	230		110	4.2	4.4	2.50
11	400	15.3	220		110	4.3		2.40
12	400	15.4	220		110	4.3		2.40
13	400	15.4	230		110	4.2		2.40
14	400	15.1	230		110	4.0		2.40
15	400	14.9	250		110	3.6	4.0	2.40
16	380	(14.6)	250		110	3.3	3.7	(2.40)
17		(14.1)	270		115	2.4	3.5	(2.40)
10		13.6	310				3.0	2.45
19		(13.5)	310				3.2	(2.40)
20		(12.8)	310				2.6	(2.40)
21		(13.3)	300				1.9	(2.45)
22		(13.1)	290				1.4	(2.45)
23		(13.0)	270					(2.60)

Time: 165.0°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 37

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.8	<260				<1.6	2.75
01		7.3	255					2.75
02		6.6	<250					2.60
03		6.2	<260				<1.1	2.60
04		6.0	270				<1.1	2.60
05		6.0	270			E		2.65
06		8.7	250			2.2		3.00
07	---	11.1	235			3.1		2.95
08	---	12.4	230			3.5		2.85
09	---	12.9	225			3.9		2.70
10	---	13.2	220			4.0		2.60
11	(390)	13.4	220	---		---	4.4	2.55
12	(395)	13.3	225	---		---	4.5	2.45
13	(400)	13.2	(225)	---		4.1	4.6	2.45
14	(395)	13.0	230	---		4.0	4.7	2.40
15	(390)	12.8	235	---		3.9	4.2	2.45
16	---	12.8	240			3.5	4.0	2.45
17		12.6	250			2.9	3.5	2.50
18		12.4	265			2.0	2.5	2.60
19		(11.8)	250				2.0	(2.65)
20		(11.1)	255				1.7	(2.70)
21		(10.6)	250				1.6	(2.75)
22		(9.8)	255				<1.7	(2.80)
23		8.8	250				<1.8	2.80

Time: 30.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 38

Capetown, Union of S. Africa (34.1°S, 18.3°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.2	<260				<1.8	2.70
01		6.6	<280				<1.7	2.60
02		6.2	<295				<1.8	2.55
03		5.8	<290				<1.6	2.55
04		5.8	<290				<1.6	2.55
05		5.6	<300				<1.6	2.55
06		6.6	280			<1.8		2.70
07		9.5	245			2.6		2.95
08		11.3	240			3.2		(2.90)
09		12.6	235			---		2.75
10		13.1	(235)			---	(4.1)	2.65
11	---	13.5	---			---		2.55
12	---	13.6	---			---		2.50
13	(370)	13.6	---	---		---		2.45
14	(400)	13.5	---	---		---		2.40
15	(380)	13.2	---	---		---		2.40
16	---	13.0	(250)			---	3.8	2.45
17		12.8	250			3.1	3.2	2.50
18		12.4	255			2.7	2.9	2.60
19		>11.6	255			<1.9	<2.0	(2.70)
20		>10.2	245				<1.8	(2.70)
21		> 9.4	(245)				<1.8	(2.70)
22		9.1	<260				<1.9	2.75
23		8.0	<255				<1.8	2.80

Time: 30.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 7 seconds.

Table 39

Campbell I. (52.5°S, 169.2°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.7	300				2.0	2.40
01		6.0	290				2.0	2.45
02		5.8	300				<1.4	2.40
03		5.2	300		---	---		2.40
04		5.0	300		---	1.4		2.50
05		6.0	270		120	1.9		2.70
06	---	6.9	250	---	105	2.6		2.80
07	---	7.5	240	---	105	3.1		2.70
08	(460)	7.9	230	5.4	105	3.4		2.65
09	420	8.2	220	5.8	105	3.6		2.60
10	450	8.5	220	5.9	105	3.7		2.50
11	450	8.5	220	6.2	105	3.8		2.50
12	460	8.6	220	6.0	105	3.8		2.45
13	440	8.8	220	6.1	105	3.8		2.45
14	430	8.9	230	5.8	105	3.7		2.45
15	(420)	9.1	240	5.3	105	3.4		2.50
16	---	9.0	240	---	105	3.1		2.50
17		8.8	260	---	110	2.6		2.50
18		8.7	280		120	2.0		2.50
19		8.8	280		130	1.4		2.50
20		8.1	270		---	---	<1.3	2.40
21		7.8	280				1.9	2.40
22		7.6	290				1.5	2.40
23		7.0	300				2.1	2.40

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

Table 40

Cape Hallett (72.3°S, 170.3°E) October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.8)	345		---	1.4		(2.30)
01		(4.4)	335		151	1.5		(2.30)
02		(4.4)	355		139	(1.5)	1.8	(2.35)
03	---	(4.3)	325	---	117	1.9	(2.2)	(2.45)
04	---	(4.6)	295	---	111	2.0	2.9	(2.55)
05	---	(5.7)	275	(4.0)	111	2.5		(2.60)
06	(485)	(6.5)	265	4.0	109	3.0		(2.65)
07	(390)	(7.9)	260	4.0	109	3.1		(2.60)
08	370	8.5	245	4.2	109	3.2		2.55
09	(480)	(9.3)	245	4.4	109	3.3		(2.55)
10	460	(8.9)	240	4.6	109	3.4		(2.55)
11	460	8.8	235	5.0	109	3.3		2.40
12	(500)	(8.8)	235	(5.0)	109	3.3		(2.50)
13	435	(8.6)	230	4.9	109	3.3		(2.50)
14	(495)	(8.6)	235	4.9	109	3.2		(2.45)
15	(470)	8.6	240	4.4	109	3.1		2.45
16	(480)	(8.9)	255	4.5	111	2.8	3.0	(2.45)
17	(475)	8.4	265	4.1	111	2.5		2.45
18	---	(8.5)	280	---	111	2.3		(2.40)
19	---	(9.4)	290	---	111	2.0		(2.45)
20		(8.6)	295		123	1.7		(2.45)
21		(7.6)	300		---	1.4		(2.35)
22		(6.0)	320		---	1.4		(2.40)
23		(5.2)	320		---	1.3		(2.30)

Time: 165.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 41

Sodankyla, Finland (67.4°N, 26.6°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.8)	330				3.6	(2.50)
01		(7.1)	335				3.6	(2.45)
02		---	350				3.6	----
03		---	330		---	----	3.6	----
04		(5.3)	310		---	----	3.6	(2.45)
05		5.3	300		---	E	3.6	2.65
06		6.2	275		---	E	3.8	2.70
07		6.9	260		120	2.50	4.4	2.70
08		7.7	250		115	2.75	4.4	2.65
09		8.2	245	---	110	3.00	4.4	2.65
10		8.9	250	---	110	3.10	4.7	2.65
11		9.9	230	---	110	3.20	5.0	2.65
12		9.6	230	---	110	3.30	5.1	2.65
13		9.2	240	---	110	3.30	5.0	2.60
14		9.3	240	---	110	3.20	5.0	2.65
15		9.0	245	---	110	3.05	4.6	2.65
16		8.9	250	---	115	2.90	4.4	2.70
17		9.0	250		120	2.50	4.2	2.70
18		8.5	265		120	2.20	4.2	2.75
19		8.6	260		---	E	3.9	2.80
20		7.8	260		---	E	3.9	2.75
21		7.5	270		---	E	3.6	2.75
22		6.8	300				3.8	2.60
23		(6.3)	315				3.6	(2.50)

Time: 30.0°E.
Sweep: 1.4 Mc to 22.0 Mc in 8 minutes, automatic operation.

Table 42

Lycksele, Sweden (64.6°N, 18.8°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.8	300				2.2	2.4
01		5.5	310				2.4	2.4
02		5.0	315		---	----	2.4	2.4
03		5.0	295		---	E	2.5	2.5
04		5.0	300		---	E	2.2	2.5
05		5.7	270		110	1.30	2.0	2.6
06	---	6.6	255	----	105	2.10	2.5	2.7
07	(325)	7.4	245	4.60	105	2.50	3.0	2.7
08	(350)	7.9	240	4.90	105	2.85	3.3	2.8
09	365	8.4	230	5.15	105	3.00	3.3	2.7
10	380	9.0	220	5.30	105	3.10	3.4	2.7
11	405	9.5	230	5.50	105	3.30		2.6
12	370	9.2	230	5.70	105	3.40	3.7	2.7
13	365	9.1	230	5.30	105	3.30		2.6
14	380	9.1	235	5.25	105	3.20	3.2	2.7
15	380	9.0	240	5.20	105	3.00	3.1	2.7
16	---	9.0	240	----	105	2.60	3.1	2.8
17	---	8.6	250	----	110	2.20	2.4	2.7
18		8.6	255		120	1.60	2.6	2.7
19		7.9	255		---	E	2.4	2.7
20		7.7	260		---	E	2.3	2.6
21		6.8	265				2.2	2.6
22		5.8	200				2.6	2.5
23		5.9	310				2.4	2.45

Time: 15.0°E.
Sweep: 0.33 Mc to 20.0 Mc in 3 minutes.

Table 43

Oslo, Norway (60.0°N, 11.1°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.3	310					2.45
01		5.7	310				1.3	2.40
02		5.7	310					2.30
03		5.2	300					2.40
04		5.1	300					2.45
05		5.1	300		---	1.40	1.4	2.55
06	---	6.1	260	----	110	1.90		2.70
07	---	7.0	250	----	110	2.45		2.70
08	---	7.9	250	----	110	2.85		2.70
09	---	8.6	240	----	110	3.15	3.2	2.70
10	---	9.0	240	----	110	3.40		2.55
11	(500)	9.0	240	----	105	3.55		2.55
12	(490)	9.2	240	5.50	110	3.55		2.55
13	---	9.5	240	----	105	3.60		2.55
14	---	9.2	240	----	105	3.50		2.55
15	---	9.2	245	----	105	3.30		2.55
16	---	9.2	250	----	105	3.10		2.60
17		9.0	250		100	2.60	2.6	2.60
18		9.6	255		110	2.00	2.4	2.70
19		9.4	250		---	----	2.3	2.70
20		9.2	250				3.2	2.70
21		7.2	260					2.55
22		6.9	280					2.45
23		6.6	300					2.45

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 44

Upsala, Sweden (59.8°N, 17.6°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.8	310				3.2	2.45
01		5.5	315				3.2	2.4
02		5.1	325				3.2	2.4
03		5.0	310				3.2	2.4
04		4.8	305		---	E	3.2	2.5
05		5.2	280		---	E	4.2	2.6
06	---	6.6	260	----	125	2.20	4.3	2.8
07	(350)	7.5	245	5.00	115	2.70	5.0	2.8
08	350	8.3	240	5.20	110	3.00	5.2	2.8
09	340	9.0	240	5.45	110	3.20	5.6	2.7
10	375	9.2	235	5.50	110	3.40	5.4	2.7
11	360	9.4	235	5.70	110	3.50	5.7	2.7
12	375	9.6	235	5.70	105	3.55	6.0	2.6
13	380	9.5	240	5.70	105	3.50	5.6	2.6
14	375	9.4	240	5.65	105	3.40	4.8	2.6
15	370	9.4	245	5.50	110	3.15	4.6	2.7
16	345	9.2	245	5.50	115	2.95	4.6	2.7
17	---	9.4	250	----	125	2.40	3.2	2.7
18		9.4	260		140	1.80	3.2	2.8
19		9.0	250		---	E	3.2	2.8
20		7.6	255		---	E	3.0	2.7
21		7.0	260				3.2	2.6
22		6.6	285				3.2	2.5
23		6.3	305				3.2	2.4

Time: 15.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 45

Churchill, Canada (58.8°N, 94.2°W) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.8	310		---	---	4.6	
01		5.8	300		---	1.6	4.6	
02		5.8	320		---	1.8	6.0	
03		5.3	320		---	1.6	4.5	
04		5.0	330		120	2.0	4.1	
05		5.2	330		120	2.1	4.0	
06	---	5.4	300	---	120	2.4	3.8	---
07	---	6.4	270	4.1	120	2.8	3.3	---
08	(640)	7.4	260	---	110	3.1	4.0	(2.8)
09	G	7.7	240	4.9	115	3.3	4.4	2.6
10	(640)	7.7	240	4.9	110	3.4	4.4	2.6
11	540	8.5	240	5.0	110	3.6	4.0	2.5
12	470	8.6	240	5.4	110	3.7	4.1	2.6
13	440	8.9	230	5.2	110	3.6	4.2	2.6
14	410	8.9	230	5.2	110	3.4	3.6	2.6
15	430	9.0	230	4.8	110	3.2		2.6
16	460	9.0	240	4.4	110	3.0		2.5
17	---	9.0	250	4.1	120	2.7		2.6
18	---	7.9	280	---	120	2.4	3.0	2.7
19		6.8	300		130	2.0	2.7	---
20		5.8	320		125	2.0	4.0	
21		5.8	300		125	2.0	4.7	
22		5.7	320		130	2.0	4.4	---
23		5.3	300		---	2.0	4.4	

Time: 90.0°W.
Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 46

De Bilt, Holland (52.1°N, 5.2°E) September 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	6.3						2.55
01	310	6.2						2.60
02	(310)	6.0						2.60
03	300	5.3						2.60
04	<300	5.0						2.65
05	<290	5.6						2.80
06	250	7.0	---	---	---	2.8		3.00
07	240	7.6	240	---	---	3.2		3.00
08	(310)	8.2	230	5.7	115	3.3	3.2	2.95
09	355	9.1	230	5.7	120	3.8	3.9	2.85
10	310	10.0	230	6.0	115	3.6	3.8	2.85
11	350	10.3	230	6.7	115	4.0	3.8	2.70
12	340	10.6	225	6.6	115	4.0	3.4	2.75
13	350	10.4	230	6.8	105	4.0	3.3	2.75
14	(350)	10.2	230	6.6	110	3.8		2.75
15	300	10.0	240	5.7	115	3.7		2.75
16	250	10.3	240	---	120	3.2		2.80
17	250	10.2	---	---	---	2.8		2.85
18	250	10.2						2.85
19	250	9.2						2.90
20	250	8.0						2.75
21	270	7.3						2.70
22	300	7.0						2.65
23	305	6.4						2.60

Time: 0.0°.
Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 47

Wakkanai, Japan (45.4°N, 141.7°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.3	305					2.50
01		7.2	300				2.4	2.45
02		7.0	300				2.4	2.50
03		6.8	300				2.4	2.50
04		6.6	295				1.8	2.50
05		7.5	295			----		2.65
06	---	9.8	245	---		2.30	3.0	2.90
07	---	11.5	240	---		3.00	3.5	2.90
08	---	12.1	240	---		3.35		2.90
09	---	12.0	235	---		3.55		2.80
10	---	11.8	230	---		3.70		2.70
11	---	11.8	225	---		3.80		2.60
12	---	11.6	230	---		3.80		2.60
13	---	11.4	240	---		(3.70)		2.60
14	---	11.4	240	---		3.60		2.60
15	---	10.9	250			3.45	3.5	2.65
16		10.8	250			3.00	3.5	2.65
17		10.5	260			2.35	3.5	2.70
18		10.2	260				3.5	2.70
19		9.3	260				3.2	2.70
20		8.8	260				3.0	2.65
21		8.3	270				2.5	2.60
22		(7.9)	290					(2.55)
23		7.6	300					2.55

Time: 135.0°E.
Sweep: 1.0 Mc to 20.7 Mc in 1 minute.

Table 48

Rome, Italy (41.8°N, 12.5°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.0	300					2.50
01		7.9	300					2.55
02		7.8	310					2.50
03		7.7	290					2.55
04		7.0	280					2.50
05		6.7	280					2.60
06		7.7	250		140	1.9		2.90
07	---	(9.8)	240	---	120	2.6		(3.05)
08	---	(10.6)	240	---	110	3.2	3.6	(2.95)
09	---	11.6	230	---	110	3.6	4.2	(2.90)
10	---	11.9	230	---	110	3.7	3.8	2.70
11	---	11.9	220	---	110	3.8		2.65
12	---	12.1	230	---	110	3.9		2.60
13	---	12.1	230	---	110	3.9		2.55
14	---	12.0	240	---	110	3.8		2.55
15	---	11.8	240	---	110	3.6		2.55
16	---	11.6	250		110	3.3		2.65
17		11.6	260		110	2.8	3.9	2.65
18		11.2	260		110	2.0	3.4	2.80
19		(10.3)	260				3.2	2.65
20		(9.5)	260				3.2	(2.70)
21		8.8	270				2.8	2.60
22		8.5	290				3.1	2.50
23		8.4	300				2.6	2.50

Time: 15.0°E.
Sweep: 1.4 Mc to 15.0 Mc in 5 minutes, automatic operation.

Table 49

Akita, Japan (39.7°N, 140.1°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.0	300					2.55
01		7.8	300					2.55
02		7.6	300					2.60
03		7.2	295					2.55
04		7.1	300					2.50
05		7.6	300					2.60
06		10.4	250			2.30		2.95
07	---	12.0	240	---		3.00	3.2	3.00
08	(260)	12.5	240	---		3.40	4.0	2.95
09	(295)	12.4	240	---		3.70	4.3	2.80
10	335	12.6	230	6.0		3.90	4.0	2.70
11	345	12.8	230	5.9		(3.95)		2.65
12	360	12.8	240	6.8		(4.00)		2.60
13	360	12.7	245	(6.7)		(4.00)		2.60
14	350	12.4	240	6.7		3.75		2.60
15	350	12.2	245	(5.8)		3.50	3.7	2.60
16	---	11.6	250			3.00	3.6	2.65
17		11.5	255			2.40	3.6	2.70
18		10.9	255				3.0	2.80
19		9.8	255				3.0	2.75
20		9.0	270				2.6	2.60
21		8.7	280				2.5	2.60
22		8.7	290				2.4	2.60
23		8.4	295					2.60

Time: 135.0°E.
Sweep: 1.6 Mc to 20.0 Mc in 20 seconds.

Table 50

Tokyo, Japan (35.7°N, 139.5°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(8.4)	300					(2.55)
01		8.0	310					2.50
02		7.8	300					2.50
03		7.2	280					2.55
04		7.1	300					2.50
05		7.6	305					2.55
06	---	10.7	250			2.40		2.95
07	---	12.4	245	---		3.00	3.2	3.05
08	---	12.6	235	---		3.40	3.8	2.95
09	(365)	12.4	230	---		3.70	4.1	2.70
10	(460)	12.8	230	---		3.90	4.2	2.60
11	350	13.3	230	---		(4.10)		2.60
12	370	13.3	240	---		4.05		2.55
13	370	13.4	240	6.6		4.00		2.55
14	360	13.3	250	6.4		3.85		2.55
15	350	12.8	250	---		3.60		2.60
16	(350)	12.4	255			3.20	3.4	2.60
17	---	12.1	255			2.50	3.4	2.70
18		11.4	260				3.2	2.75
19		(10.0)	265				3.0	(2.65)
20		(9.4)	290				3.0	(2.55)
21		(9.2)	300				2.8	(2.55)
22		(9.1)	300				2.4	(2.60)
23		9.0	300					2.60

Time: 135.0°E.
Sweep: 1.0 Mc to 20.0 Mc in 20 seconds.

Table 51

Yamagawa, Japan (31.2°N, 130.6°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(10.4)	255				2.8	(2.75)
01		(9.9)	255					(2.70)
02		(9.0)	265					(2.70)
03		8.6	250					2.80
04		7.8	250					2.75
05		7.4	255					2.75
06		8.7	270			----		2.90
07		11.6	240			2.60	3.1	3.20
08	---	12.3	230	---		3.25	3.8	3.10
09	---	12.0	220	---		3.65	4.4	2.90
10	---	12.7	210	---		3.90	4.7	2.70
11	---	13.6	215	---		4.00	4.4	2.70
12	---	14.0	210	---		4.10	4.6	2.65
13	---	14.3	225	---		4.10	4.4	2.65
14	---	14.2	230	---		4.05	4.4	2.60
15	---	14.4	240	---		3.85	4.4	2.60
16	---	13.8	245	---		3.55	3.8	2.70
17	---	13.5	250			2.95	4.0	2.75
18		13.0	255			2.00	3.6	2.80
19		12.4	255				4.0	2.80
20		(11.9)	270				3.3	(2.65)
21		(11.9)	275				3.0	(2.65)
22		(11.6)	270				3.1	(2.70)
23		(10.9)	255				2.8	(2.75)

Time: 135.0°E.
Sweep: 1.0 Mc to 20.0 Mc in 1 minute.

Table 52

Formosa, China (25.0°N, 121.5°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>16.5	260					2.80
01		>16.4	240					2.80
02		13.2	230					3.00
03		>11.1	220					3.10
04		9.3	230					2.90
05		8.3	240					2.90
06		10.6	260				2.0	3.00
07		11.6	230					3.15
08	---	12.1	230			---	4.5	2.90
09	---	12.9	230	---		---	4.9	2.65
10	---	14.2	(230)	---		---	5.2	2.55
11	---	>15.9	(230)	---		---	>4.8	2.55
12	(400)	16.5	(240)	---		---		2.50
13	400	17.4	<250	---		---		2.45
14	400	(17.2)	(240)	(7.0)		---		2.50
15	380	17.3	(240)	---		---	4.5	(2.55)
16	(350)	17.3	240	---		---	4.3	2.60
17	---	17.1	(260)				4.2	2.60
18		16.6	280				4.0	2.65
19		>16.6	310				3.8	(2.55)
20		>16.0	310				3.4	2.60
21		16.4	280					(2.65)
22		18.8	270					(2.70)
23		>17.4	260					(2.80)

Time: 120.0°E.
Sweep: 1.1 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 53

Leopoldville, Belgian Congo (4.4°S, 15.2°E) September 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	12.8						2.56
01	240	11.6						2.53
02	240	9.6					1.5	2.62
03	230	8.1					1.6	2.76
04	230	6.0					1.6	2.97
05	260	7.1	---	---	---	---	2.8	2.88
06	260	10.5	245	---	120	3.0	3.5	2.77
07	(260)	11.6	235	---	110	3.6	4.2	2.57
08	---	12.6	230	---	110	4.0	4.6	2.40
09	(340)	13.3	230	---	110	4.0	5.0	<2.29
10	415	13.6	240	---	110	4.2		2.20
11	445	14.0	245	---	110	---		2.16
12	450	14.2	250	6.7	110	4.2		<2.14
13	450	14.8	247	6.5	110	4.0		2.06
14	460	15.0	245	6.0	110	3.8		2.08
15	435	15.0	250	---	120	3.4	3.6	2.06
16	405	15.0	270	---	120	2.6	3.4	2.14
17	330	>14.8	300	---			3.0	<2.20
18	360	(16.0)					3.0	(2.18)
19	310	----					2.0	----
20	240	----						----
21	230	>16.8						<2.43
22	220	17.0						(2.48)
23	230	14.1						2.56

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 54

Rarotonga I. (21.2°S, 159.8°W) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(10.9)	250					(2.65)
01		(9.6)	250					(2.70)
02		8.6	250					2.60
03		8.0	270					2.55
04		7.5	270					2.60
05		7.4	290					2.60
06		(10.3)	260		125	2.2		(2.80)
07		13.6	250		115	3.1		3.00
00		14.2	240		115	3.5		2.80
09		14.1	230		110	3.9		2.70
10	---	14.0	230		110	4.1		2.60
11	380	13.5	230		110	4.3	4.4	2.50
12	400	13.0	220	---	110	4.3	4.7	2.40
13	400	13.2	220	---	110	4.1	4.6	2.40
14	400	13.4	230		110	3.9	4.4	2.40
15	400	13.2	240		110	3.6	3.6	2.40
16	390	13.2	250		110	3.2		2.40
17		13.0	280		120	2.3	2.6	2.40
18		(13.7)	310				2.7	(2.45)
19		(13.5)	300				2.8	(2.40)
20		(13.4)	270				2.6	(2.45)
21		(14.0)	260				<1.4	(2.50)
22		(13.2)	250					(2.65)
23		(12.9)	240					(2.70)

Time: 165.0°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 55

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.6	245				<1.3	2.80
01		5.8	<250					2.75
02		5.4	(255)					2.70
03		5.1	(250)					2.70
04		4.9	(255)					2.75
05		4.6	260					2.75
06		6.2	270			1.7		2.90
07		9.8	230			2.8		3.15
08	---	12.0	230	---		3.4		3.00
09	---	12.8	225	---		3.8		2.90
10	---	13.0	220	---		4.0		2.80
11	---	13.2	215	---		4.1		2.65
12	---	12.8	215	---		(4.1)		2.55
13	(350)	12.6	210	---		4.1		2.45
14	385	12.6	210	6.5		4.0		2.45
15	---	12.4	225	---		3.8	4.0	2.45
16	---	12.0	235			3.5	3.6	2.50
17		11.9	250			2.9		2.60
18		11.9	260			1.9		2.70
19		11.4	250				<1.5	2.70
20		10.6	245				<1.5	(2.80)
21		>9.8	245				<1.5	2.85
22		9.2	245				<1.5	2.90
23		7.8	240				<1.4	2.90

Time: 30.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 56

Capetown, Union of S. Africa (34.1°S, 18.3°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	<255				<1.8	2.80
01		5.5	<275				<1.7	2.70
02		5.0	<295				<1.7	2.65
03		5.0	<280				<1.7	2.70
04		4.8	<280				<1.8	2.60
05		4.6	<280				<1.6	2.65
06		4.2	<290				<1.6	2.70
07		7.5	245			2.1		3.05
00	---	10.6	240			2.9		3.05
09	---	12.3	240			3.4		2.90
10	---	13.0	230			---		2.80
11	---	13.4	---			---		2.70
12	---	>13.3	---			---		2.60
13	---	13.2	---			---		2.50
14	(350)	13.2	---			---		2.50
15	(320)	13.0	---	---		---		2.50
16	---	12.8	240			---		2.50
17		12.5	245			3.1		2.55
18		(12.0)	250			2.4		2.60
19		>10.9	245			<1.7	<1.7	(2.70)
20		10.1	(240)				<1.8	(2.80)
21		>9.7	(245)				<1.8	2.85
22		8.8	(240)				<1.8	2.90
23		7.2	<245				<1.8	2.90

Time: 30.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 7 seconds.

Table 57

Campbell I. (52.5°S, 169.2°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.0	280				2.0	2.50
01		6.6	280				>2.1	2.50
02		6.5	270		---	---	2.0	2.55
03		6.0	270		---	---	<1.7	2.55
04		5.6	260		---	---	<1.2	2.50
05		5.6	260		---	1.3		2.65
06		6.7	250		120	2.0		2.90
07	---	8.6	240	---	110	2.6		3.00
08	---	>10.0	230	---	105	3.1		2.95
09	---	10.3	220	---	105	3.4		2.85
10	---	10.2	220	---	105	3.6		2.70
11	290	10.8	220	5.6	105	3.6		2.70
12	280	11.2	220	(5.4)	105	3.7		2.70
13	(270)	11.0	220	5.5	105	3.6		2.70
14	(400)	11.0	220	5.2	105	3.4		(2.70)
15	---	>10.5	230	---	110	3.2		(2.55)
16	---	>10.5	240	---	110	2.8		(2.65)
17		>10.2	250		120	2.1		(2.55)
18		>10.0	250		---	1.5		2.65
19		>9.5	250				<1.3	2.60
20		8.5	250				<1.2	2.60
21		8.0	270				<1.2	2.55
22		7.1	280				<1.4	2.50
23		7.4	300				2.0	2.55

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

Table 58

Scott Base (77.8°S, 166.8°E) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.2	290		---	---	<1.4	2.40
01		(4.8)	300		---	1.5		(2.30)
02		5.2	300		---	1.4		2.40
03		5.5	310		---	1.4	<1.6	2.50
04		(4.6)	270		---	1.4	2.4	(2.60)
05		(5.4)	280		---	1.5	2.8	2.60
06		5.8	260		115	1.6	2.4	2.60
07		6.8	260		110	1.8	2.0	2.70
08		7.7	250		115	2.2		2.80
09	---	7.8	250	---	115	2.4		2.75
10	---	8.7	250	---	115	2.4		2.75
11	---	8.6	250	---	110	2.5		2.70
12	---	8.4	250	---	115	2.5		2.70
13	---	9.5	250	4.2	(115)	2.5		2.60
14	---	9.8	260	---	115	2.5		2.65
15	---	9.9	260	(4.2)	(115)	2.3		2.60
16	---	10.0	270	---	115	2.1		2.60
17	---	10.0	270	---	120	1.7		2.60
18		>10.0	260		125	<1.7		2.55
19		10.0	260		---	1.4		2.65
20		9.9	260		---	1.3		2.60
21		7.4	260		---	1.2		2.40
22		7.6	260		---	1.3	<1.5	2.60
23		5.8	270		---	---		2.45

Time: 165.0°E.

Table 59

Bogota, Colombia (4.5°N, 74.2°W) February 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		13.4	225					3.10
01		11.0	215				2.2	3.20
02		8.6	210					3.10
03		6.0	235					2.85
04		5.5	250				3.2	2.88
05		5.3	(260)				2.4	2.70
06		6.4	290		---	----	2.1	2.80
07		11.0	250		<120	2.62	3.1	3.00
08		13.8	240		117	3.35		3.00
09	---	14.8	225		113	3.75		2.95
10	---	14.7	215		111	4.02		2.80
11	---	15.0	210		111	4.20	4.2	2.75
12	---	15.0	210	---	111	4.25		2.65
13	(405)	15.1	(210)	---	111	4.20	4.4	2.60
14	(400)	15.1	230	---	112	4.02	4.3	2.60
15	(390)	15.5	230		111	3.80		2.60
16	---	15.0	240		113	3.50	3.7	2.60
17		14.8	250		117	2.95	3.4	2.60
18		15.2	265		---	----	2.2	2.70
19		16.75	270				2.0	2.70
20		17.5	270					2.70
21		17.65	245					2.80
22		16.1	240					2.90
23		16.35	240					3.10

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 60

Little America (78.2°S, 162.2°W) February 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	(5.1)	300	---	109	----	2.8	----
01	---	(5.0)	295	---	111	----	3.0	----
02	---	(4.6)	(310)	(3.3)	105	----	4.0	G
03	---	(4.6)	(330)	---	109	----	3.2	(2.55)
04	---	(5.25)	<300	---	106	----	3.6	(2.70)
05	---	(5.3)	280	---	105	(2.70)	3.2	(2.78)
06	---	(5.6)	280	---	105	----		(2.85)
07	(530)	(6.2)	270	(4.2)	103	(3.02)		2.65
08	(455)	(6.9)	260	(4.3)	104	2.80		2.65
09	(480)	(6.9)	250	(4.5)	101	(3.00)		(2.70)
10	(505)	(6.55)	245	(4.6)	101	(3.00)		(2.55)
11	450	(6.1)	245	(4.6)	101	(3.05)		(2.55)
12	(470)	(6.7)	<240	(4.7)	101	(3.18)		(2.58)
13	(480)	(6.5)	240	(4.8)	101	(3.10)		(2.60)
14	(450)	(6.4)	250	(4.9)	102	(2.98)	3.4	(2.62)
15	(500)	(6.0)	240	(4.8)	101	(2.95)	3.5	(2.55)
16	(495)	(6.0)	250	(4.5)	103	(2.78)	3.8	(2.60)
17	445	(6.55)	260	(4.2)	103	(2.68)	3.6	(2.55)
18	450	(7.0)	270	(4.2)	107	(2.70)	2.7	(2.65)
19	(500)	(6.8)	<270	(4.0)	105	----	2.5	(2.58)
20	(525)	(7.15)	280	---	107	(2.48)		(2.58)
21	---	(6.5)	290	---	106	----		(2.50)
22	---	(6.0)	300	---	108	----		----
23	---	(4.2)	300	---	105	----	3.0	----

Time: 165.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 61

Byrd Station (80.0°S, 120.0°W) February 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(435)	(5.75)	330	---	117	(2.45)	3.2	(2.42)
01	(480)	(5.5)	350	---	118	2.70		(2.40)
02	<510	(5.85)	(375)	---	111	----	3.8	(2.38)
03	<615	5.4	(380)	---	(112)	2.95	3.4	2.38
04	---	5.3	<340	---	---	2.55	3.2	2.60
05	---	5.6	(290)	---	111	(2.70)		2.62
06	---	5.65	(285)	---	(111)	2.68		2.62
07	---	5.8	<255	---	<117	(2.70)		2.65
08	---	6.1	260	---	108	2.80		2.68
09	(450)	6.5	250	(4.8)	(109)	2.92		2.60
10	(445)	6.7	250	4.5	109	2.92		2.60
11	470	6.8	250	4.8	109	2.92		2.48
12	530	6.6	250	4.3	107	2.92		2.50
13	455	6.8	250	(4.5)	109	2.90		2.50
14	460	6.7	255	(4.4)	107	3.00		2.52
15	460	6.5	(280)	(4.5)	109	3.20		2.55
16	430	(6.5)	280	(4.5)	109	3.15		(2.55)
17	(490)	(6.35)	280	4.6	111	3.00		(2.55)
18	(440)	(6.2)	280	(4.6)	109	3.00		(2.40)
19	(500)	(6.0)	290	4.3	111	2.90	3.5	(2.38)
20	<465	(6.3)	295	(4.1)	(117)	2.60		(2.35)
21	(420)	(6.65)	320	---	<115	----	3.8	(2.40)
22	---	(6.8)	315	(3.8)	109	----	4.0	(2.32)
23	(430)	(6.2)	(340)	---	114	----	4.1	(2.40)

Time: 120.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 62

Pole Station (90.0°S) February 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(490)	5.8	250	(4.1)	101	(2.78)	5.8	2.70
01	---	6.15	250	(4.3)	105	(2.78)	6.5	2.70
02	(440)	6.4	260	4.3	109	(2.90)	6.7	2.60
03	530	5.9	260	4.0	105	(2.68)	3.1	2.52
04	450	(6.4)	260	4.0	104	(2.70)	3.8	2.50
05	490	6.0	260	4.0	105	2.75	4.2	2.50
06	450	(6.4)	260	4.2	103	(2.70)		2.40
07	470	(5.95)	(260)	4.0	105	(2.70)	2.8	(2.35)
08	510	(5.35)	250	3.8	105	(2.70)	5.1	(2.30)
09	530	(5.5)	245	3.7	104	----	5.2	(2.15)
10	(580)	(5.1)	<270	3.8	103	(2.78)	4.6	2.40
11	(605)	4.9	(275)	3.7	102	(2.70)	5.0	2.30
12	(700)	(4.9)	<280	4.0	103	(2.90)	4.0	2.45
13	625	5.25	(280)	3.8	105	3.10	5.7	2.40
14	(550)	5.6	<280	4.0	101	3.00		2.75
15	(470)	6.3	265	(4.0)	103	(2.92)	5.4	2.65
16	(400)	6.8	270	4.1	105	(2.60)	3.1	2.60
17	(420)	6.3	270	(3.8)	105	(2.70)	5.4	2.60
18	(465)	5.7	260	(3.9)	101	2.60	5.2	2.70
19	(455)	5.6	<255	(4.1)	103	2.70	5.0	2.65
20	(450)	5.8	265	---	101	(2.60)	3.8	2.78
21	---	5.75	250	---	101	(2.70)	3.6	2.82
22	---	5.85	260	---	101	(2.70)	5.4	2.95
23	(440)	5.9	260	---	102	(2.52)	3.2	2.80

Time: 0.0°.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 63

Wilkes Station (66.2°S, 110.5°E) January 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	(5.0)	320		105	----	4.7	(2.65)
01	---	(5.0)	325		102	----	5.8	(2.48)
02	---	(5.2)	(320)	---	101	----	5.9	(2.60)
03	---	(5.4)	(300)	---	---	(2.35)	5.9	(2.50)
04	(435)	(5.7)	(270)	(3.8)	103	(2.65)	5.6	(2.55)
05	490	(5.9)	(255)	(4.3)	101	(2.90)	6.0	(2.45)
06	<545	(5.8)	240	(4.5)	101	3.28	5.3	(2.30)
07	580	(5.8)	230	4.6	101	3.42	5.4	(2.20)
08	605	(5.8)	220	(4.8)	101	(3.60)	4.0	(2.22)
09	580	(5.9)	230	(4.9)	101	(3.75)	4.0	(2.22)
10	615	(6.0)	<230	(4.9)	101	(3.80)		(2.15)
11	590	(6.4)	<235	5.1	101	3.88		(2.20)
12	580	(6.1)	(230)	(5.0)	101	(3.90)		(2.15)
13	560	(6.2)	(230)	(5.0)	101	(3.80)		(2.20)
14	565	(5.85)	210	(4.9)	101	3.78		(2.20)
15	560	(6.3)	220	(4.8)	101	3.62		(2.25)
16	560	(6.1)	220	(4.8)	101	3.45		(2.15)
17	540	(6.1)	220	(4.5)	101	(3.25)	3.6	(2.22)
18	540	(5.7)	240	4.2	101	3.00	3.5	(2.30)
19	485	(6.0)	250	(4.0)	103	(2.70)	4.0	(2.40)
20	(480)	(6.05)	280	---	103	(2.45)	5.0	2.40
21	---	(5.8)	290		103	(2.10)	4.0	(2.50)
22	---	5.4	300		103	(1.72)	5.2	2.55
23	---	(5.3)	300		103	----	4.4	(2.58)

Time: 105.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 64

Little America (78.2°S, 162.2°W) January 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(515)	(5.2)	260	(3.7)	103	----		(2.45)
01	550	(5.0)	260	(3.7)	104	(2.75)		(2.30)
02	G	(4.7)	270	(3.7)	103	----		G
03	(700)	(4.65)	285	(4.0)	103	2.90		(2.30)
04	G	4.65	280	(4.1)	102	(3.00)		G
05	(690)	(5.2)	275	(4.4)	101	(3.12)		(2.30)
06	(570)	(5.65)	260	(4.5)	101	3.10		(2.55)
07	525	(6.0)	260	(4.8)	101	(3.30)		(2.50)
08	520	(6.7)	250	(5.0)	101	3.35		(2.40)
09	530	(6.5)	240	(4.9)	101	3.45		(2.40)
10	510	(6.7)	240	(5.0)	101	3.48		(2.40)
11	540	(6.25)	240	(5.0)	101	(3.50)		(2.40)
12	560	(6.15)	240	(5.0)	101	(3.50)		(2.35)
13	565	(6.1)	230	(5.0)	101	(3.50)		(2.32)
14	540	(6.0)	230	(5.0)	101	(3.50)		(2.30)
15	560	(6.2)	240	(4.9)	101	3.50		(2.35)
16	555	(6.0)	240	(4.8)	101	3.40		(2.35)
17	560	(6.2)	245	(4.8)	101	(3.22)		(2.40)
18	510	(6.2)	240	(4.5)	101	(3.00)	3.2	(2.40)
19	500	(6.4)	250	(4.4)	101	(3.00)		(2.40)
20	510	(6.2)	260	(4.0)	102	(2.95)		(2.42)
21	510	(5.6)	270	(4.0)	101	(2.80)		(2.48)
22	(500)	(5.5)	270	(4.0)	103	2.68		(2.30)
23	500	(5.5)	270	(3.7)	104	(2.70)	2.8	----

Time: 165.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 65

Byrd Station (80.0°S, 120.0°W) January 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	515	(5.6)	(290)	(3.7)	107	2.65	4.0	(2.22)
01	550	(5.25)	<320	3.7	104	(2.80)	3.0	(2.15)
02	575	(5.1)	<295	(3.9)	104	3.00	3.6	(2.15)
03	560	5.3	(310)	4.2	101	(3.10)		2.18
04	560	5.5	270	4.4	101	3.10		2.25
05	560	5.4	265	4.5	101	3.20		2.20
06	590	5.6	255	4.7	103	3.10		2.20
07	600	5.7	250	4.8	101	3.30		2.30
08	560	6.0	250	4.9	101	3.40		2.30
09	550	6.25	245	5.1	101	3.40		2.35
10	540	6.5	240	5.0	101	3.45		2.30
11	490	6.9	235	5.1	101	3.45		2.30
12	515	7.0	240	5.1	101	3.42		2.30
13	500	7.2	240	5.0	101	3.45		2.30
14	500	7.05	250	4.9	101	3.40		2.30
15	490	7.05	250	5.0	101	3.40		2.30
16	550	6.6	260	4.9	101	3.40		2.25
17	530	6.5	260	5.0	101	3.40		2.25
18	540	(6.6)	270	4.7	101	3.30		(2.25)
19	540	(6.25)	280	(4.5)	101	(3.00)	3.0	(2.20)
20	540	(6.2)	275	(4.4)	101	2.90	3.4	(2.25)
21	510	(6.2)	(275)	(4.2)	101	(2.80)	3.6	(2.25)
22	510	(6.0)	(290)	(4.1)	101	(2.75)	3.7	(2.20)
23	480	(6.25)	<300	(4.0)	105	(2.70)	3.8	(2.25)

Time: 120.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 66

Pole Station (90.0°S) January 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	600	6.1	255	4.7	107	(3.05)	4.6	2.30
01	570	6.0	<255	4.6	105	3.02	5.6	2.25
02	550	(6.4)	255	4.5	105	(3.00)	5.4	2.25
03	595	(5.8)	255	4.5	108	(3.05)	4.2	2.10
04	565	6.0	260	4.5	109	(3.10)	3.7	2.20
05	550	6.0	250	4.4	108	(3.00)	5.4	2.20
06	570	6.1	250	4.3	107	(3.05)	3.6	2.15
07	570	6.0	250	4.3	107	(3.05)		2.20
08	625	(5.75)	<250	4.2	107	3.00		(2.12)
09	580	(5.4)	240	4.2	108	(3.10)		(2.10)
10	680	5.0	<250	4.2	107	3.30	3.4	(2.12)
11	<655	4.7	250	4.2	105	(3.30)	3.6	(2.00)
12	660	4.95	<260	4.3	105	(3.22)		2.15
13	685	5.35	(275)	4.4	105	(3.25)		2.20
14	610	5.7	265	4.5	107	(3.20)	4.5	2.30
15	575	6.2	260	4.6	107	(3.00)	4.4	2.35
16	510	6.2	260	4.5	105	(3.10)	5.3	2.38
17	570	6.1	255	4.4	106	(3.00)	5.6	2.30
18	(550)	5.55	260	4.4	109	(3.00)	5.6	2.35
19	610	5.5	260	4.5	109	(3.00)		2.30
20	580	5.75	255	4.5	107	(3.20)	4.3	2.30
21	(540)	6.2	260	4.7	109	(3.05)	3.6	2.40
22	560	6.2	250	4.7	107	(3.08)	4.2	2.45
23	(550)	6.0	250	4.7	109	(3.10)	4.2	2.30

Time: 0.0°.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 67

Freiburg, Germany (48.1°N, 7.6°E) September 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.6	320				1.3	2.45
01		6.3	295		---	----		2.50
02		5.9	300		---	----		2.50
03		5.4	310		---	----		2.40
04		5.0	<310		---	----		2.50
05		5.2	270	---	---	1.30	1.8	2.70
06	---	7.2	250	---	118	2.40	2.5	2.95
07	---	8.8	235	---	109	3.05	3.3	2.95
08	410	9.8	235	4.7	109	3.40	3.6	2.85
09	G	10.0	225	4.9	107	3.70	4.0	2.80
10	570	10.7	230	5.0	107	3.80	4.1	2.75
11	(590)	10.5	230	5.0	107	3.85	4.0	2.70
12	(550)	10.8	230	5.2	107	3.90	4.1	2.65
13	(390)	10.8	235	(5.9)	107	3.80	3.8	2.60
14	(410)	10.4	240	5.3	103	3.65		2.65
15	---	10.5	245	---	107	3.40		2.70
16	---	10.4	245	---	109	2.95	3.0	2.75
17	---	10.0	250	---	115	2.40	2.7	2.80
18		9.7	250		---	E	2.0	2.85
19		8.9	250		---	----	(2.1)	2.70
20		8.2	260		---	----	(1.8)	2.65
21		7.4	265		---	----	(1.5)	2.55
22		7.0	<290		---	----	1.8	2.55
23		6.7	290		---	----	1.7	2.50

Time: 0.0°.
Sweep: 1.25 Mc to 20.0 Mc in 3 minutes.

Table 68*

Campbell I. (52.5°S, 169.2°E) February 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	(280)	(5.0)	---	---	---	---	(2.4)	---
06	250	6.4	---	---	110	2.6	2.9	(2.7)
07	240	7.0	---	---	110	3.0		2.8
08	350	7.2	220	4.9	110	3.2		(2.8)
09	330	7.9	230	5.2	110	3.5		(2.7)
10	350	8.2	220	5.4	110	3.7		2.7
11	400	8.3	220	5.3	110	3.7		2.5
12	380	8.8	220	5.8	110	3.8		2.6
13	380	8.9	220	5.4	110	3.7	3.8	2.5
14	380	9.0	220	5.2	110	3.6		2.6
15	(360)	8.6	230	5.6	110	3.6		2.6
16	340	8.5	240	5.1	110	3.2		2.65
17	(320)	8.8	240	5.2	110	2.9		2.7
18	270	(9.2)	250	---	110	2.4	3.2	(2.6)
19	260	9.2			140	2.0	2.8	(2.65)
20	290	8.6					1.8	(2.7)
21	300	(7.4)					3.7	(2.5)
22	310	(7.4)					3.0	(2.4)
23	300	6.8					3.3	(2.6)

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on a 19-hour working schedule.

Table 69*

Campbell I. (52.5°S, 169.2°E) April 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	---	1.8					1.8	2.8
06	280	2.3			120	1.4		2.9
07	250	3.4			110	1.7		3.3
08	240	4.1	230	---	110	2.1		3.2
09	260	4.6	210	3.5	110	2.4		3.3
10	270	5.0	220	3.6	110	2.6		3.25
11	290	5.1	210	3.8	110	2.7		3.2
12	290	5.2	220	3.8	110	2.7		3.3
13	280	5.5	230	3.8	110	2.7		3.3
14	280	5.4	230	3.6	110	2.5		3.2
15	250	5.5	240	3.3	110	2.3		3.2
16	250	5.5	240	---	110	2.0		3.2
17	240	5.1			130	1.7		3.1
18	250	4.8						3.0
19	250	4.0						3.0
20	270	3.6						2.9
21	300	3.1						2.9
22								
23	---	2.4					2.8	2.7

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on an 18-hour working schedule.

Table 70*

Campbell I. (52.5°S, 169.2°E) January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	4.0	---	---	120	2.2		3.1
06	300	4.4	240	3.9	110	2.6		3.0
07	380	4.8	230	4.0	110	2.8	3.2	2.9
08	380	4.9	220	4.1	110	3.0	3.2	3.0
09	360	5.1	210	4.2	110	3.2		2.9
10	370	5.1	210	4.2	110	3.2	3.9	3.0
11	390	5.1	210	4.3	110	3.3		2.9
12	380	5.2	210	4.3	110	3.3		2.9
13	390	5.2	210	4.2	110	3.3		2.9
14	370	5.2	220	4.2	110	3.3		2.9
15	360	5.2	220	4.2	110	3.2		2.95
16	340	5.4	220	4.1	110	3.0		3.0
17	330	5.4	230	3.9	110	2.7	3.4	3.0
18	300	5.5	230	3.5	120	2.4		3.0
19	250	5.5	250	2.8	130	1.9		3.1
20	250	5.6			---	---	2.0	3.0
21	260	5.6						3.0
22								
23	290	4.7					3.8	2.9

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
* Observations taken on an 18-hour working schedule.

Table 71*

Campbell I. (52.5°S, 169.2°E) December 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	4.2	240	---	110	2.3		3.0
06	300	4.5	230	3.7	110	2.6		3.1
07	400	4.8	230	4.0	110	2.8		2.9
08	370	5.1	230	4.2	110	3.1		3.0
09	350	5.4	220	4.3	110	3.2		3.0
10	370	5.6	220	4.4	110	3.3	3.6	2.9
11	360	5.6	220	4.4	110	3.3		2.9
12	340	6.0	220	4.4	110	3.3	3.4	3.0
13	340	6.0	210	4.4	110	3.4		3.0
14	340	6.0	210	4.3	110	3.3		3.0
15	330	6.0	220	4.2	110	3.1		3.0
16	320	5.9	230	4.1	110	3.0		3.0
17	300	5.9	220	3.9	110	2.7		3.0
18	280	5.9	240	3.6	120	2.4		3.0
19	250	6.0	250	---	130	2.0	2.8	3.0
20	260	5.7					2.2	3.0
21	260	5.4					2.0	2.85
22								
23	270	4.4						2.85

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
* Observations taken on an 18-hour working schedule.

Table 72*

Campbell I. (52.5°S, 169.2°E) November 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	4.0	250	---	120	2.3		3.2
06	260	4.3	240	3.7	110	2.6		3.05
07	350	4.6	230	4.0	110	2.8		3.0
08	350	5.1	230	4.1	110	3.0		3.0
09	350	5.4	220	4.2	110	3.1		3.0
10	340	5.4	220	4.3	110	3.2		3.1
11	330	5.8	210	4.3	110	3.3	3.6	3.1
12	320	5.8	220	4.3	110	3.3	3.4	3.1
13	330	5.8	220	4.3	110	3.2		3.1
14	320	5.8	220	4.2	110	3.2		3.0
15	310	5.8	220	4.2	110	3.0		3.0
16	310	5.8	220	4.0	110	2.8		3.0
17	300	5.8	240	3.6	120	2.5		3.05
18	250	5.8	250	---	120	2.2		3.1
19	250	6.0			140	1.9		3.0
20	250	5.7						3.0
21	250	5.5						3.0
22								
23	290	4.1					2.3	2.9

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
* Observations taken on an 18-hour working schedule.

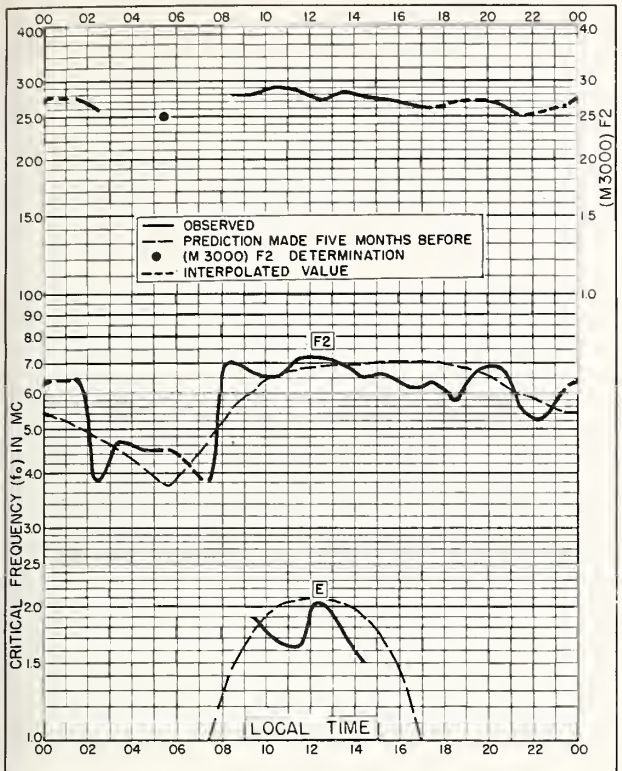


Fig. 1. THULE, GREENLAND
76.6°N, 68.7°W FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 503

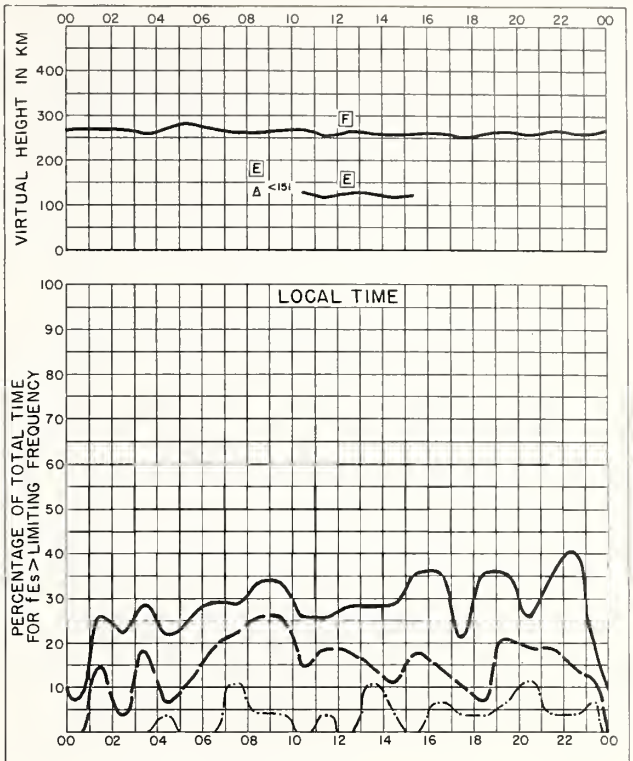


Fig. 2. THULE, GREENLAND FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 490

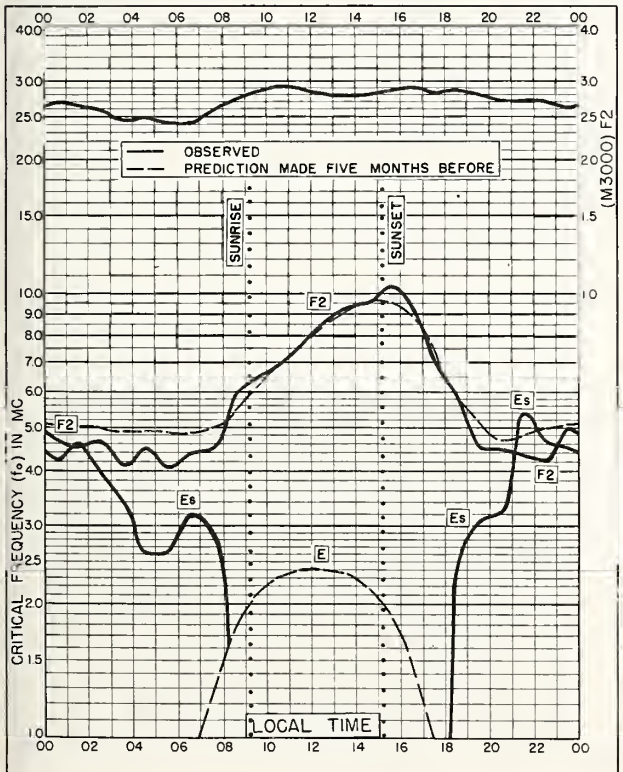


Fig. 3. POINT BARROW, ALASKA
71.3°N, 156.8°W FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 503

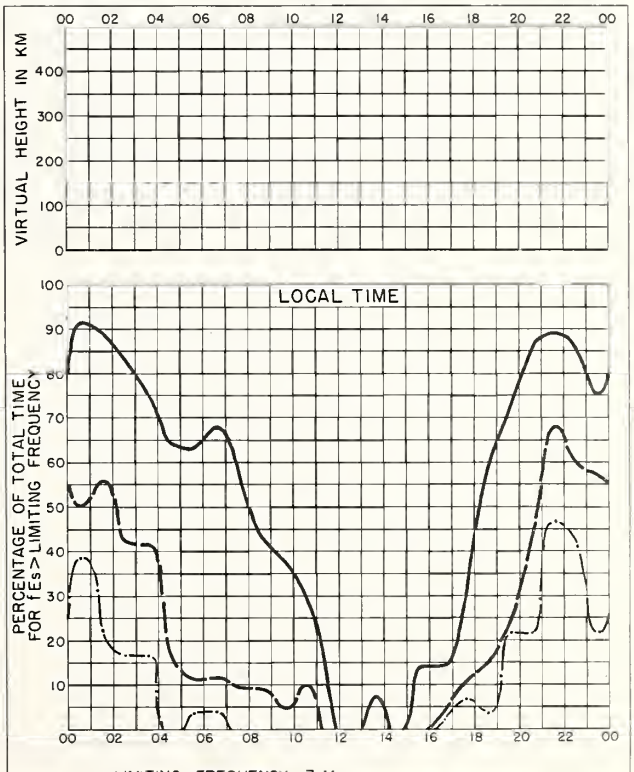


Fig. 4. POINT BARROW, ALASKA FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 490

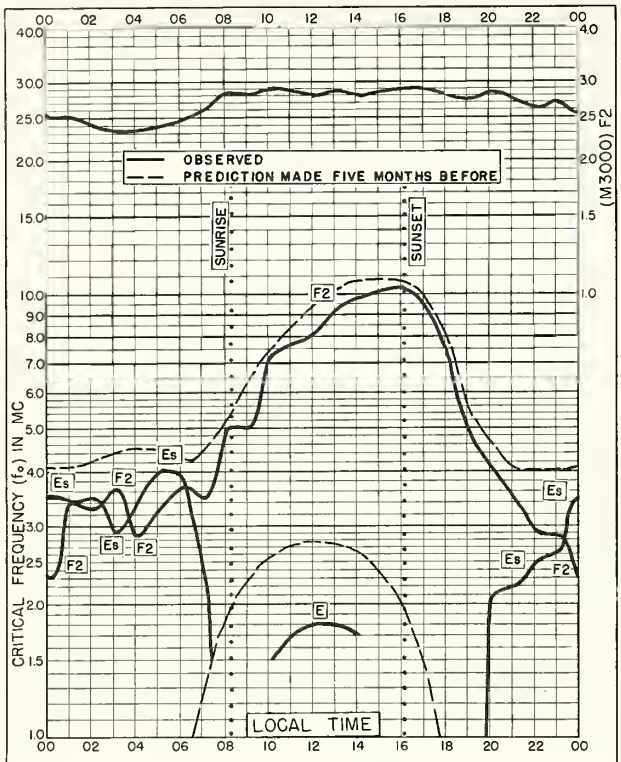


Fig. 5. FAIRBANKS, ALASKA
64.9°N, 147.8°W FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 503

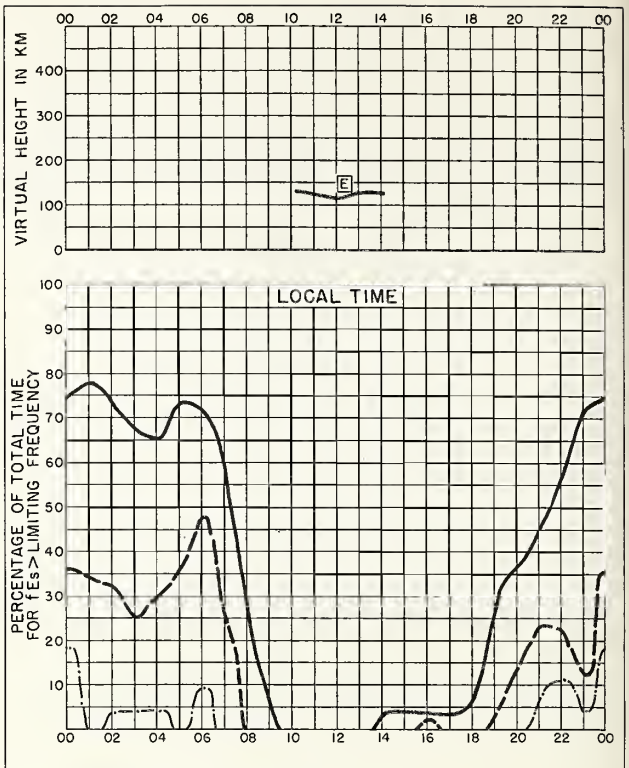


Fig. 6. FAIRBANKS, ALASKA FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 490

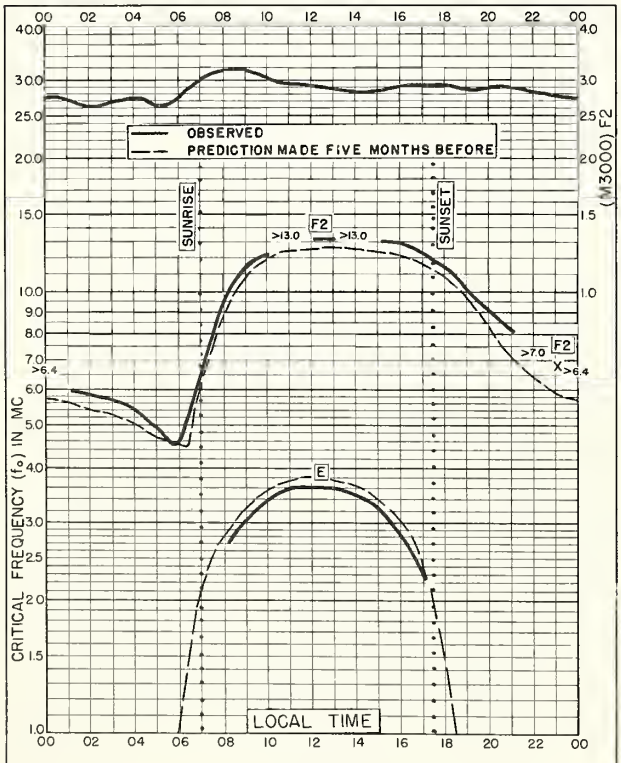


Fig. 7. FT. MONMOUTH, NEW JERSEY
40.4°N, 74.1°W FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 503

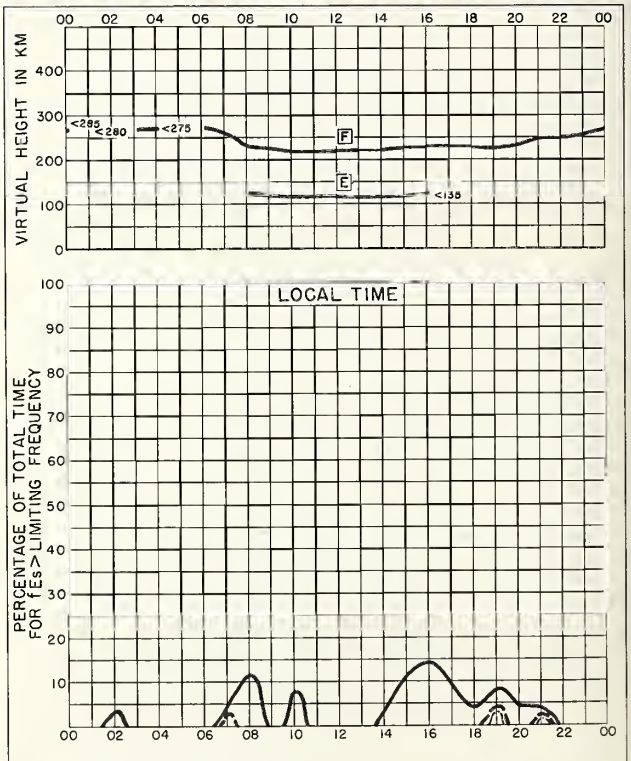


Fig. 8. FT. MONMOUTH, NEW JERSEY FEBRUARY 1959

Commerce-Standards-Boulder, Colo. NBS 490

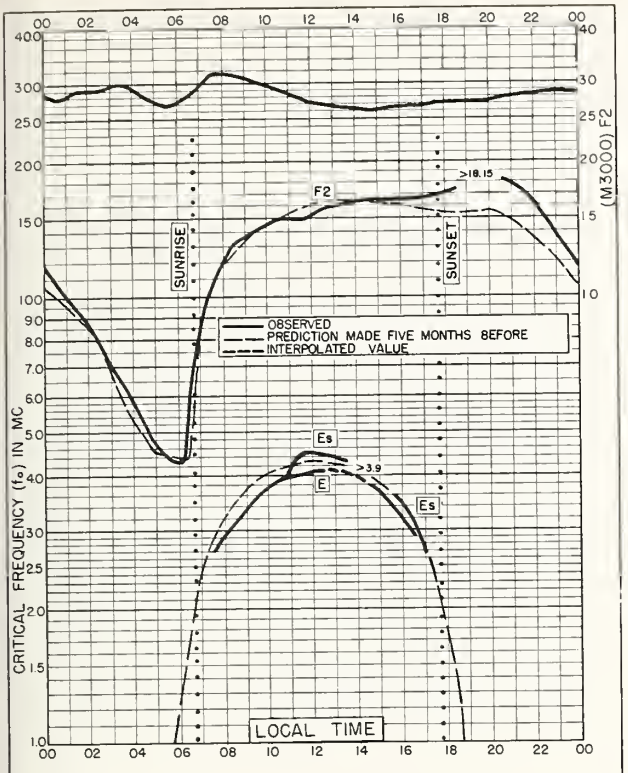


Fig. 9. OKINAWA I.
26.3°N, 127.8°E FEBRUARY 1959

NBS 503

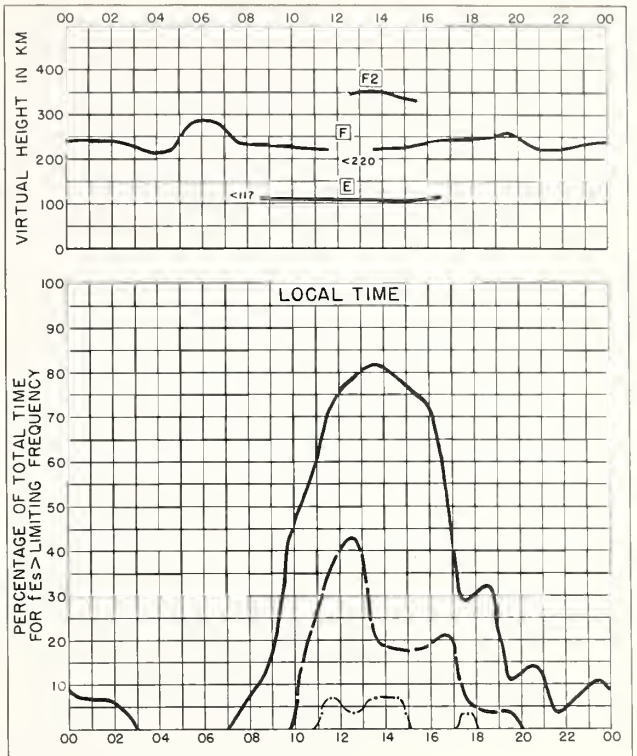


Fig. 10. OKINAWA I. FEBRUARY 1959

NBS 490

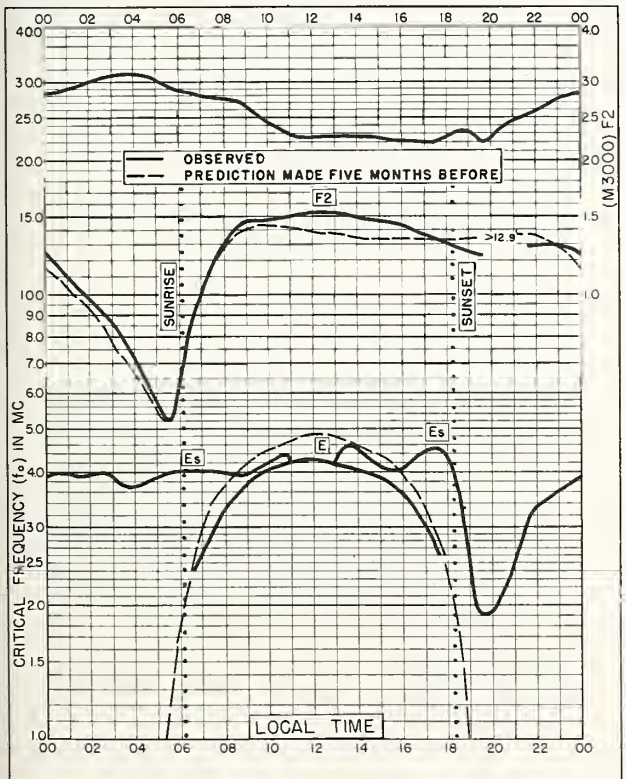


Fig. 11. TALARA, PERU
4.6°S, 81.3°W FEBRUARY 1959

NBS 503

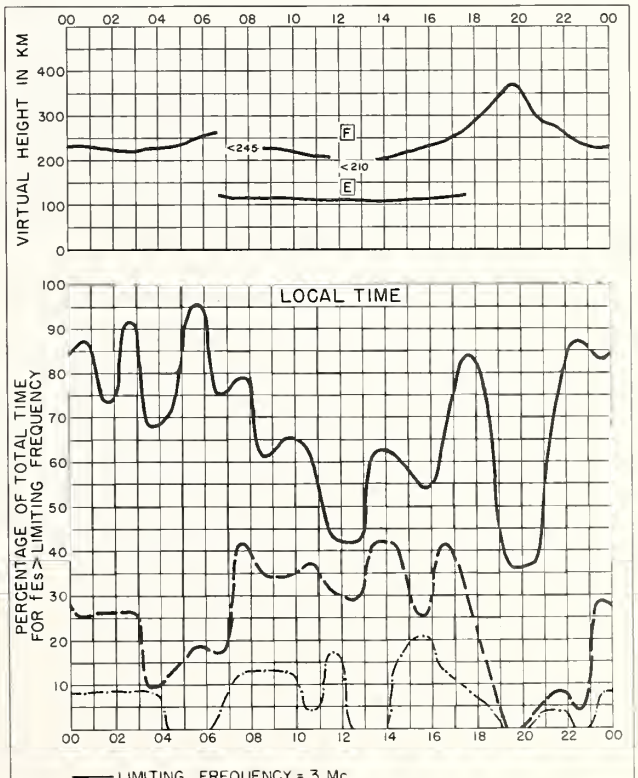


Fig. 12. TALARA, PERU FEBRUARY 1959

NBS 490

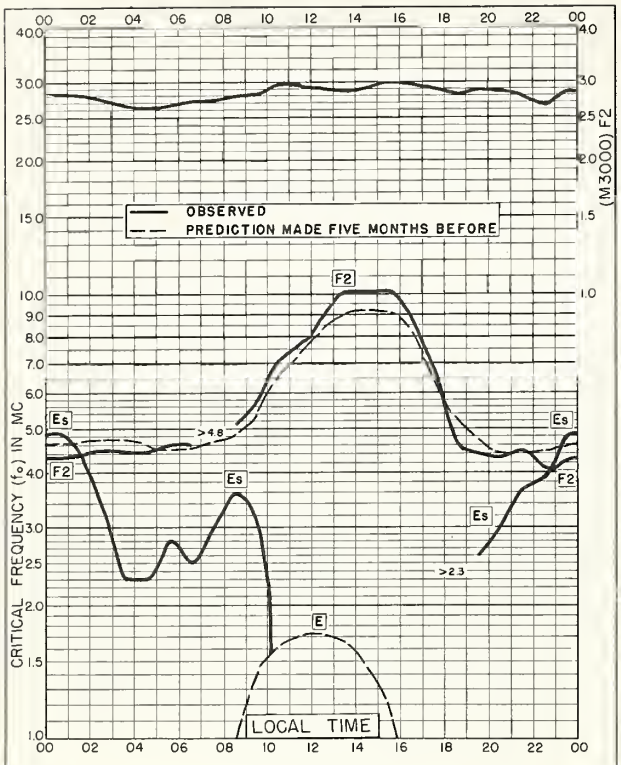


Fig. 13. POINT BARROW, ALASKA
71.3°N, 156.8°W JANUARY 1959

NBS 503

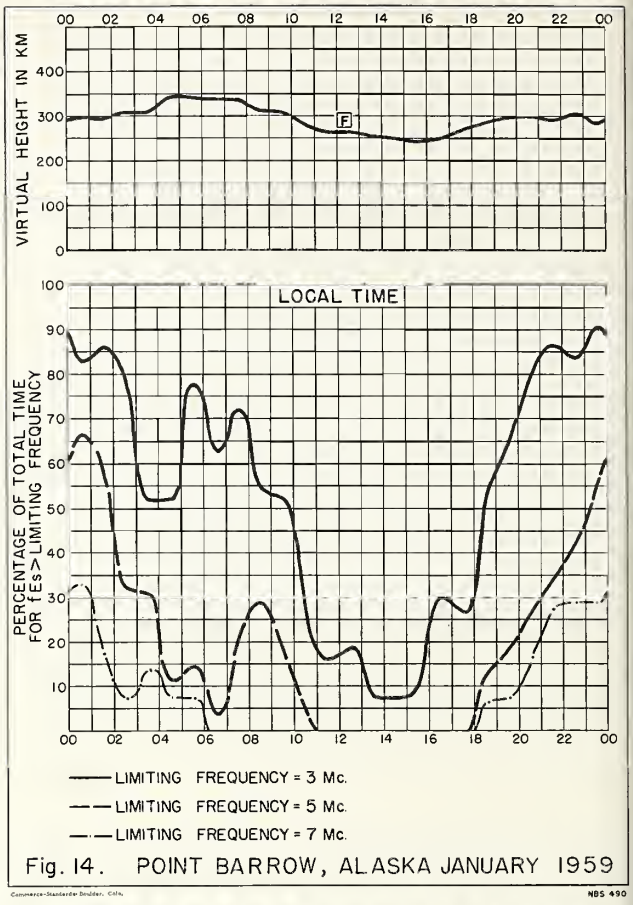


Fig. 14. POINT BARROW, ALASKA JANUARY 1959

NBS 490

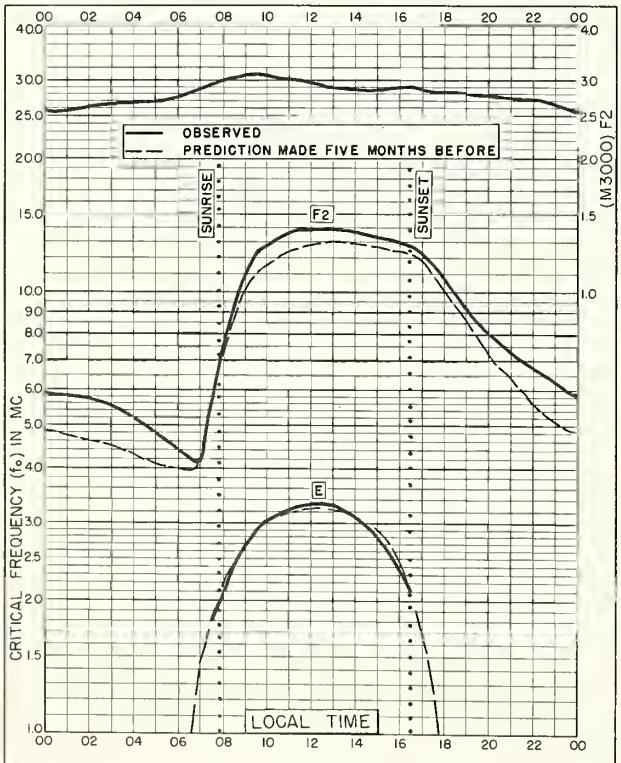


Fig. 15. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W JANUARY 1959

NBS 503

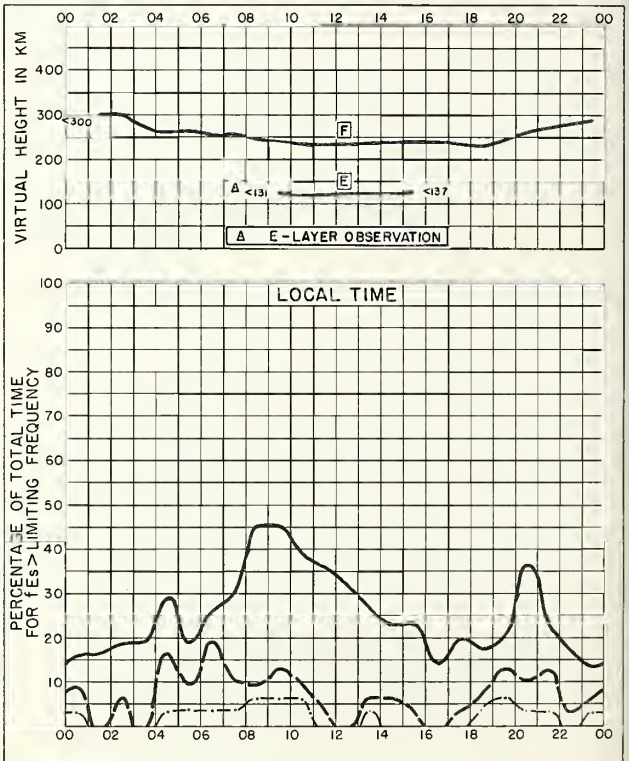


Fig. 16. ST. JOHN'S, NEWFOUNDLAND JANUARY 1959

NBS 490

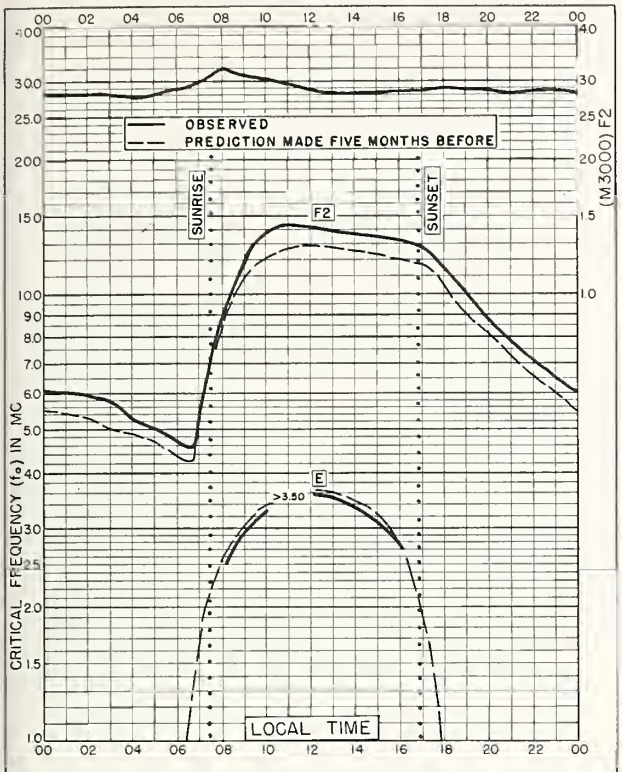


Fig. 17. FT. MONMOUTH, NEW JERSEY
40.4°N, 74.1°W JANUARY 1959

NBS 503

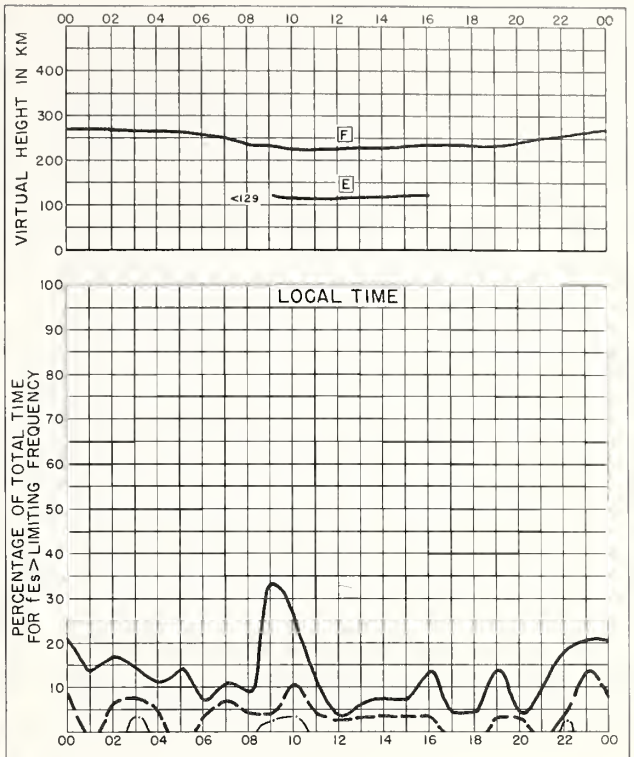


Fig. 18. FT. MONMOUTH, NEW JERSEY JANUARY 1959

NBS 490

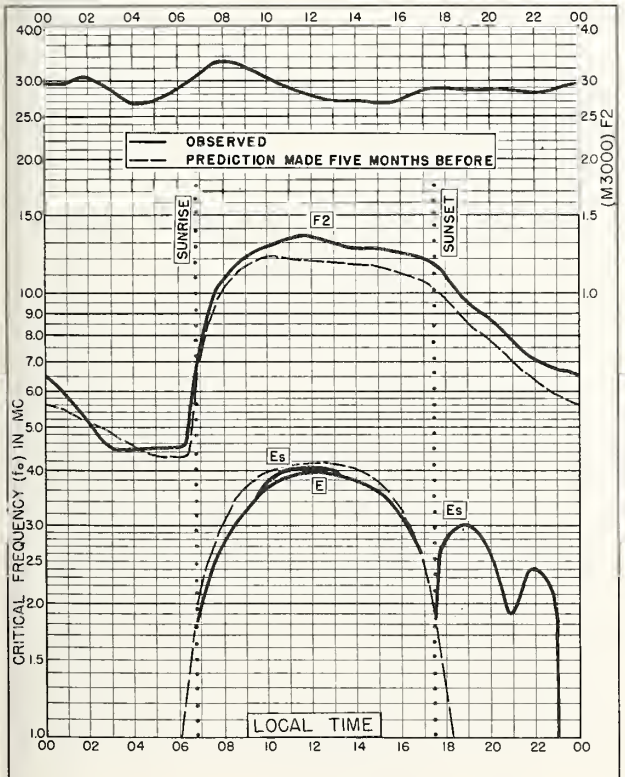


Fig. 19. GRAND BAHAMA I.
26.6°N, 78.2°W JANUARY 1959

NBS 503

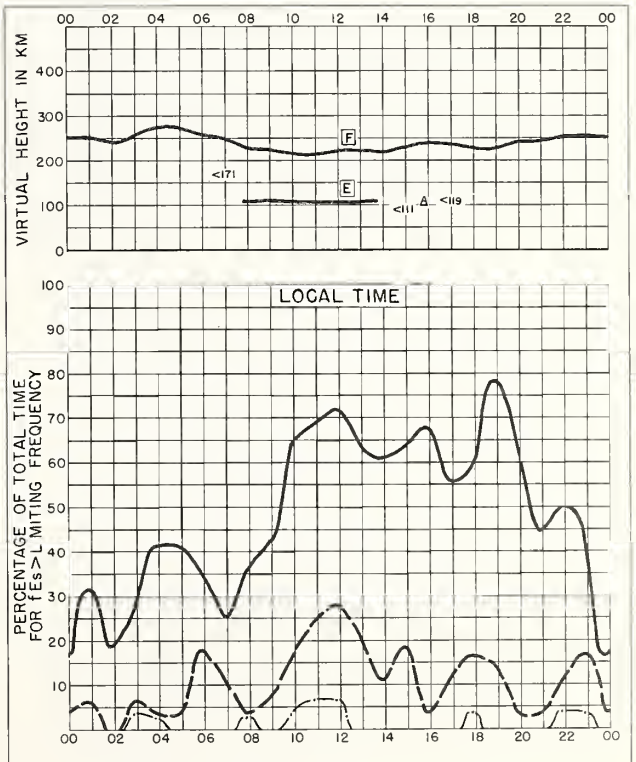


Fig. 20. GRAND BAHAMA I. JANUARY 1959

NBS 490

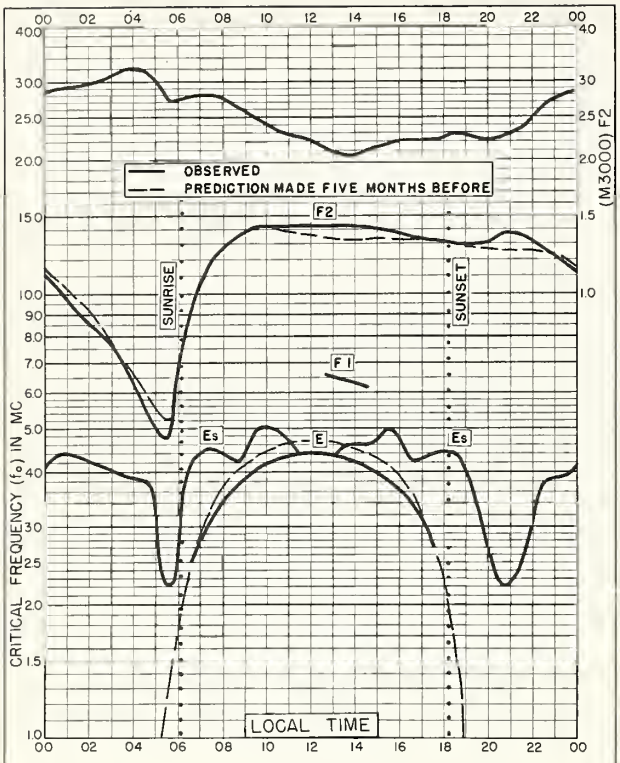


Fig. 21. TALARA, PERU
4.6°S, 81.3°W JANUARY 1959

NBS 503

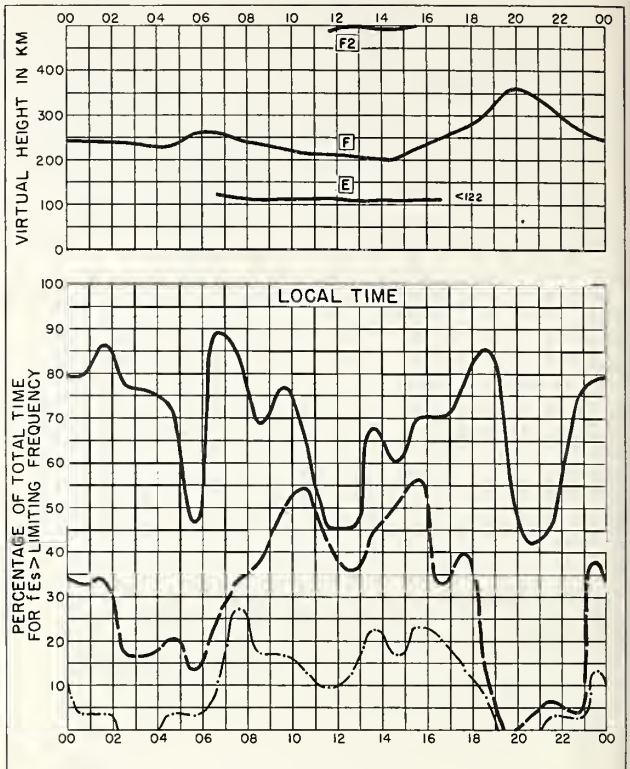


Fig. 22. TALARA, PERU JANUARY 1959

NBS 490

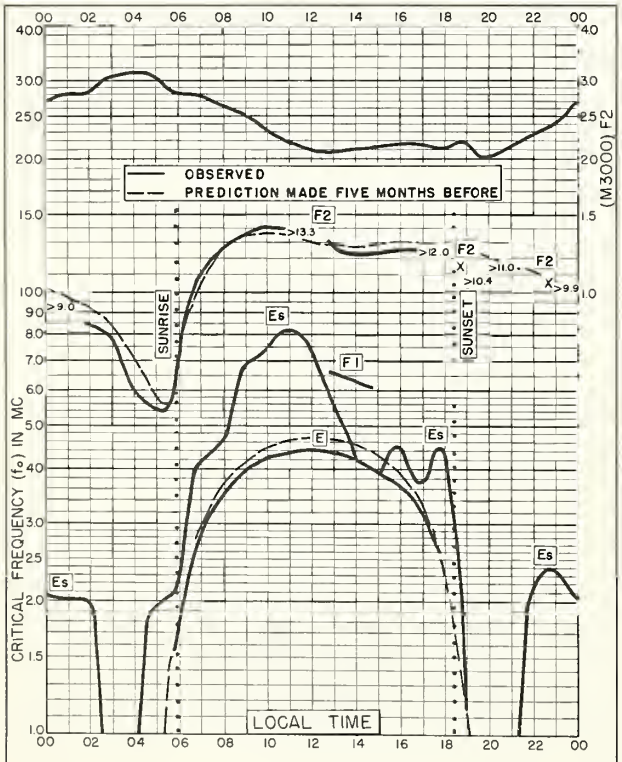


Fig. 23. CHIMBOTE, PERU
9.1°S, 78.6°W JANUARY 1959

NBS 503

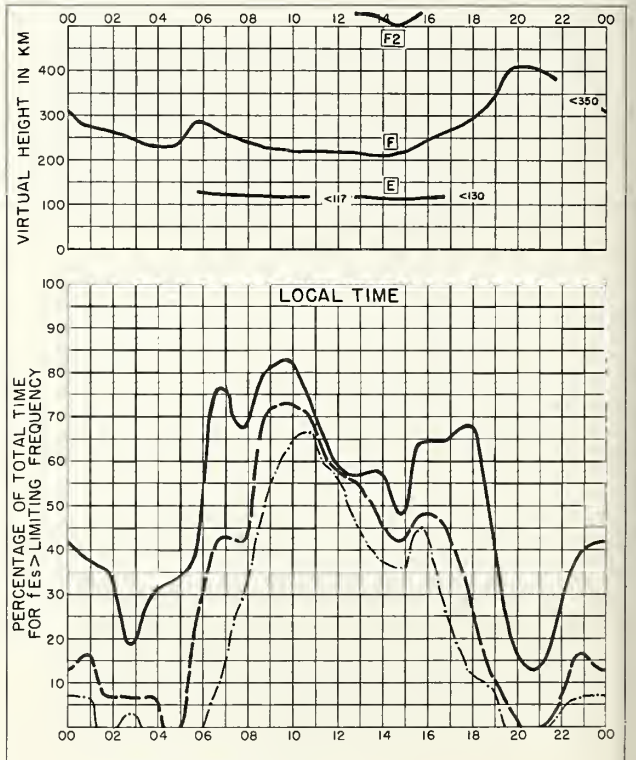


Fig. 24. CHIMBOTE, PERU JANUARY 1959

NBS 490

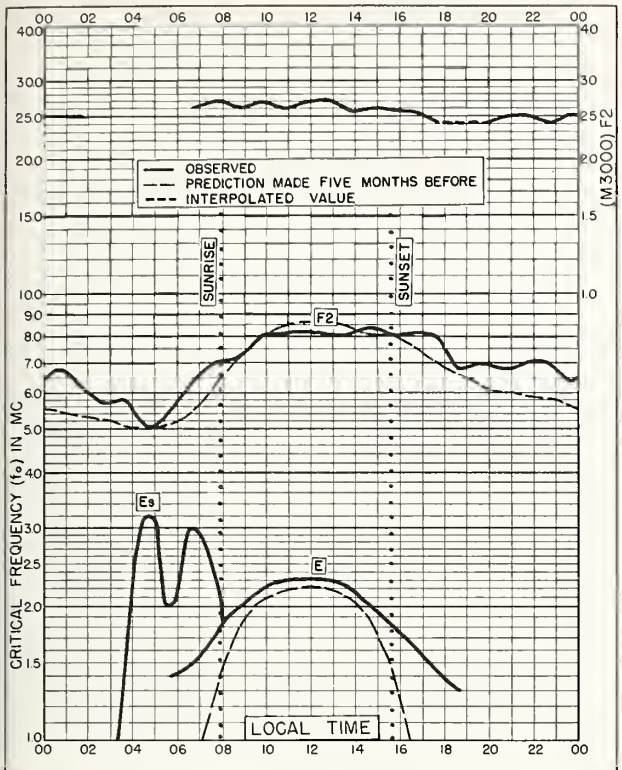


Fig. 25. RESOLUTE BAY, CANADA
74.7°N, 94.9°W OCTOBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

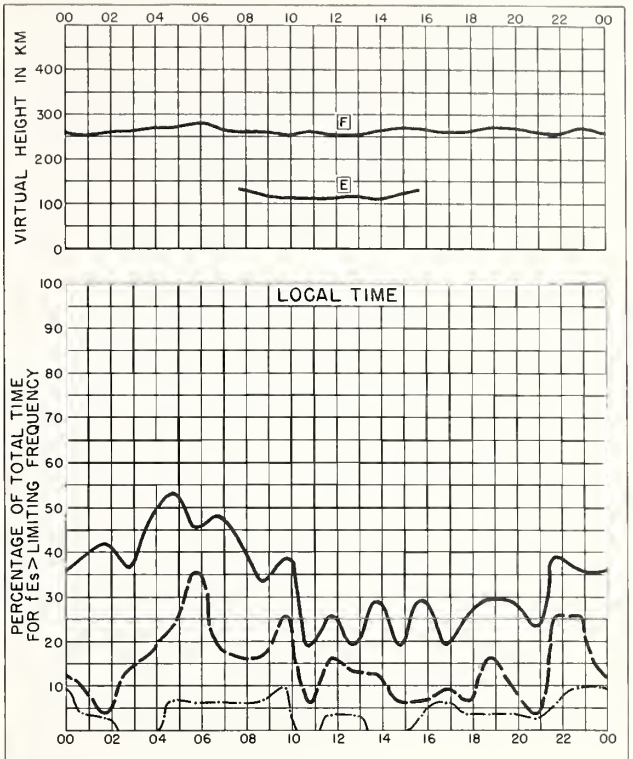


Fig. 26. RESOLUTE BAY, CANADA OCTOBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

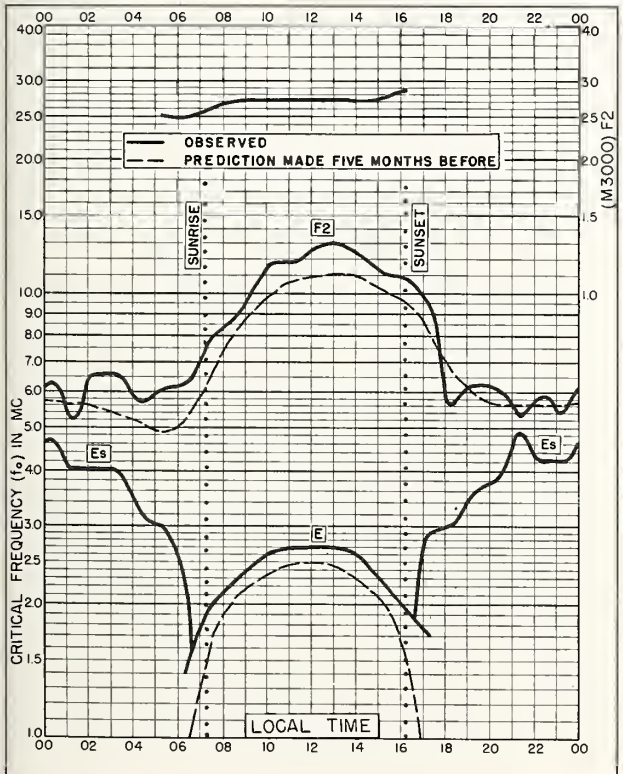


Fig. 27. TROMSO, NORWAY
69.7°N, 19.0°E OCTOBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

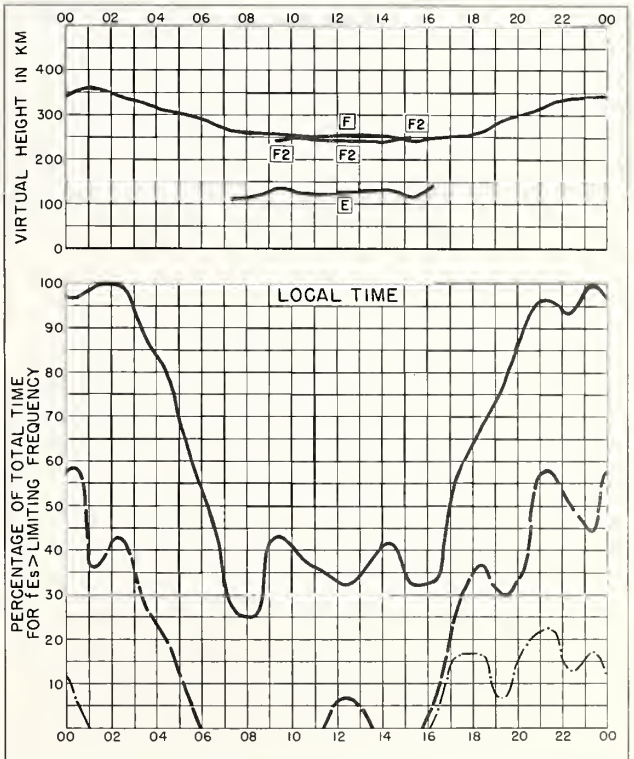


Fig. 28. TROMSO, NORWAY OCTOBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

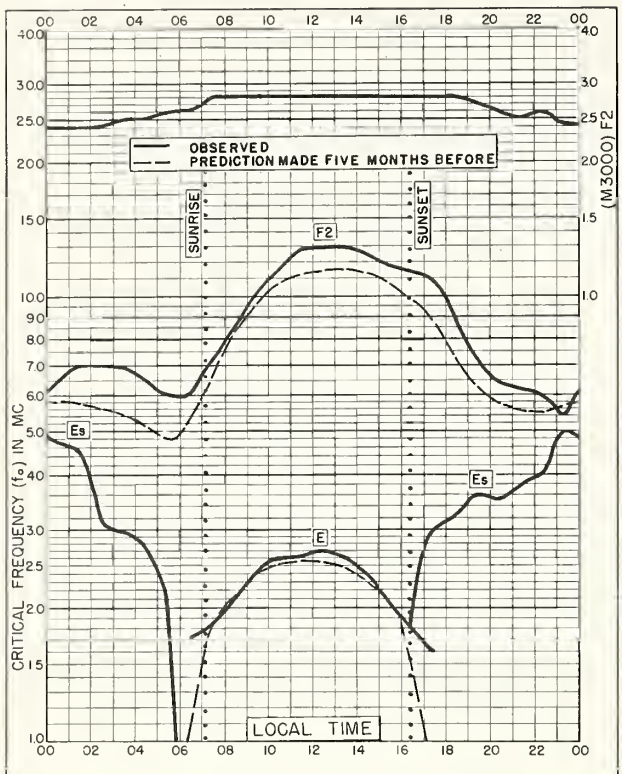


Fig. 29. KIRUNA, SWEDEN
67.8°N, 20.3°E OCTOBER 1958

NBS 503

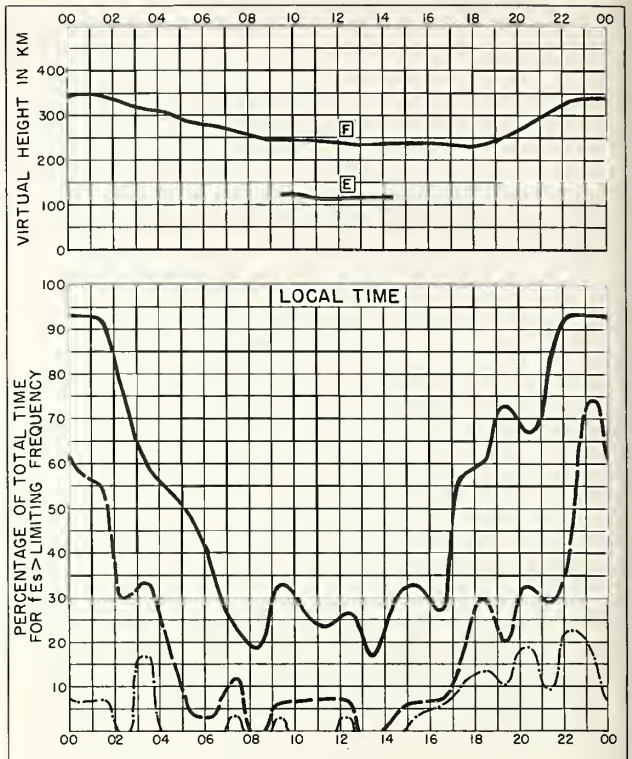


Fig. 30. KIRUNA, SWEDEN OCTOBER 1958

NBS 490

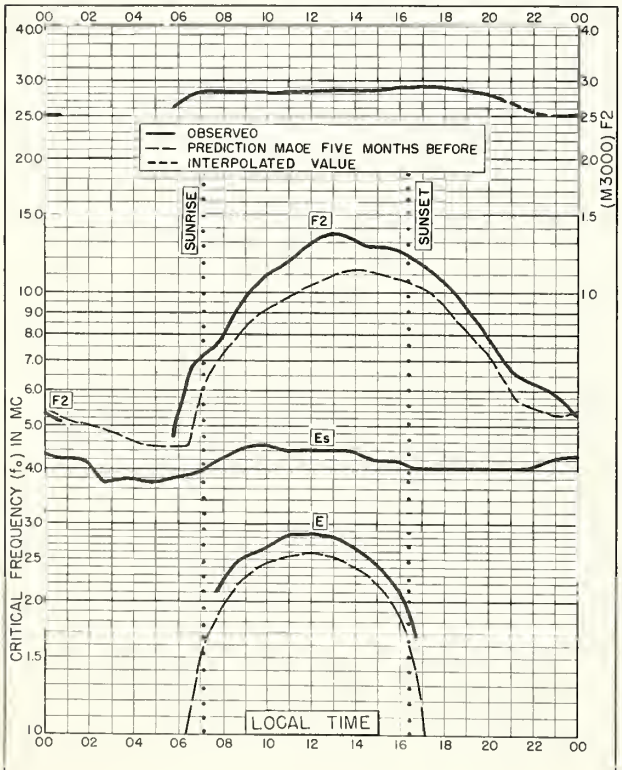


Fig. 31. SODANKYLA, FINLAND
67.4°N, 26.6°E OCTOBER 1958

NBS 503

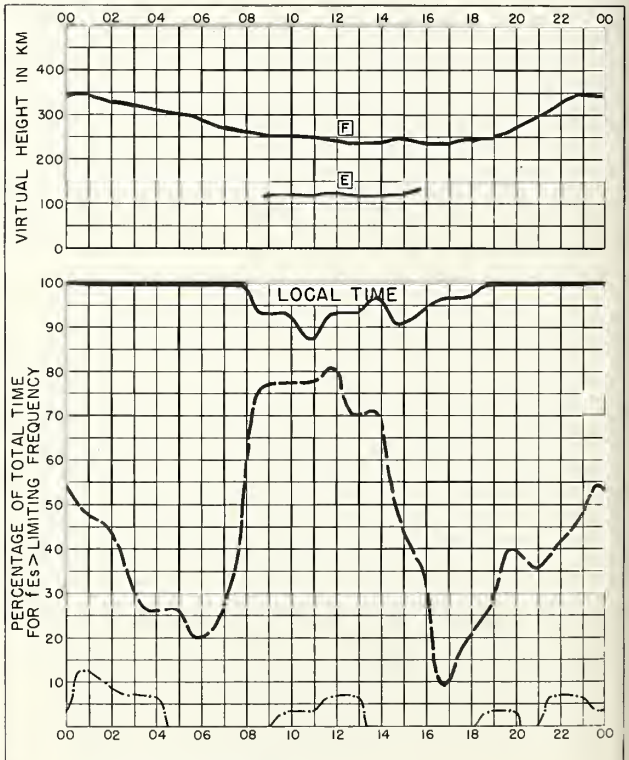


Fig. 32. SODANKYLA, FINLAND OCTOBER 1958

NBS 490

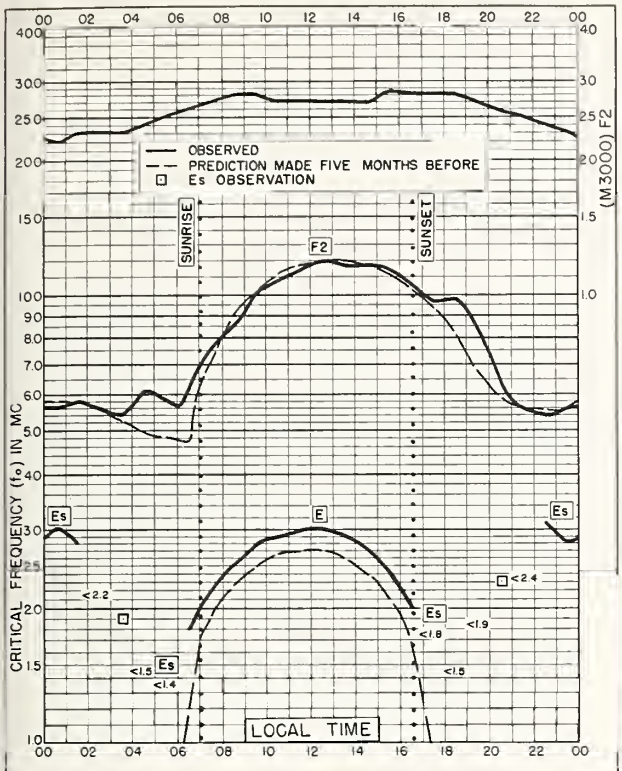


Fig. 33. LULEA, SWEDEN
65.6°N, 22.1°E OCTOBER 1958

NBS 503

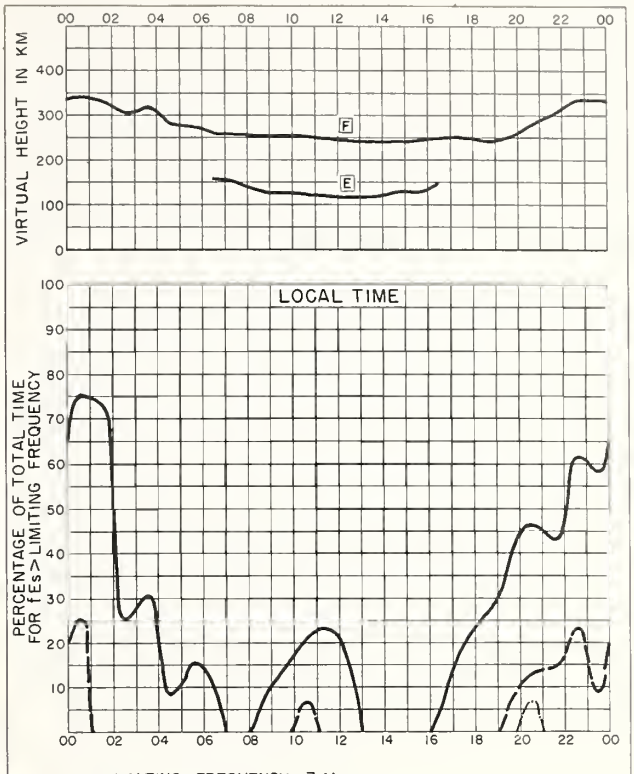


Fig. 34. LULEA, SWEDEN OCTOBER 1958

NBS 490

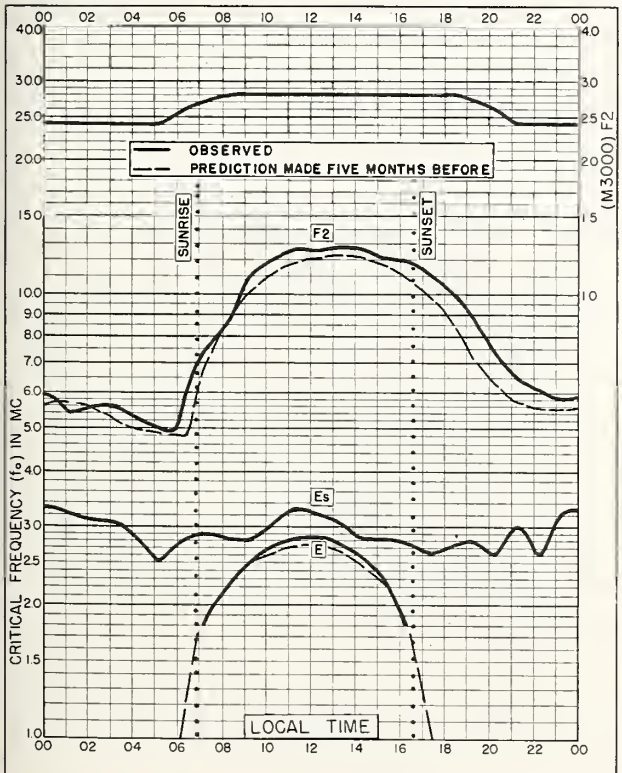


Fig. 35. LYCKSELE, SWEDEN
64.6°N, 18.8°E OCTOBER 1958

NBS 503

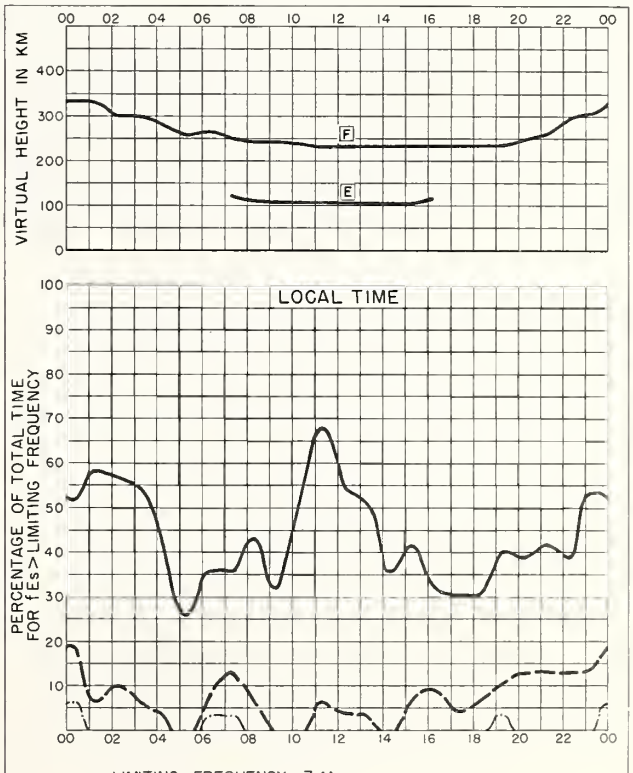


Fig. 36. LYCKSELE, SWEDEN OCTOBER 1958

NBS 490

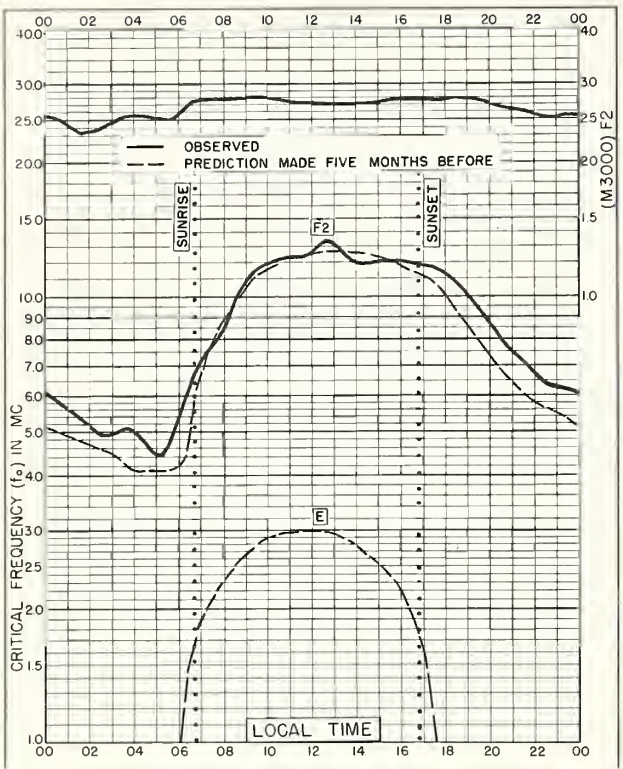


Fig. 37. NURMIJARVI, FINLAND
60.5°N, 24.6°E OCTOBER 1958

NBS 503

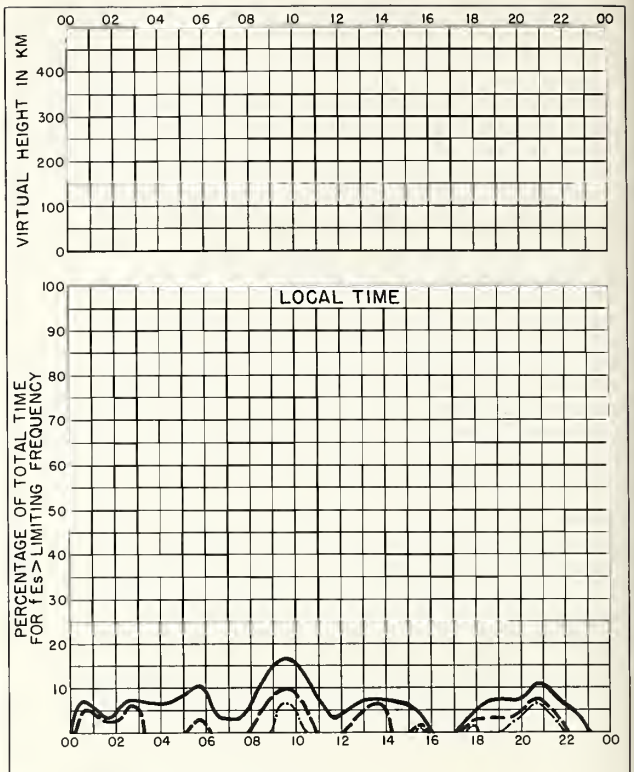


Fig. 38. NURMIJARVI, FINLAND OCTOBER 1958

NBS 490

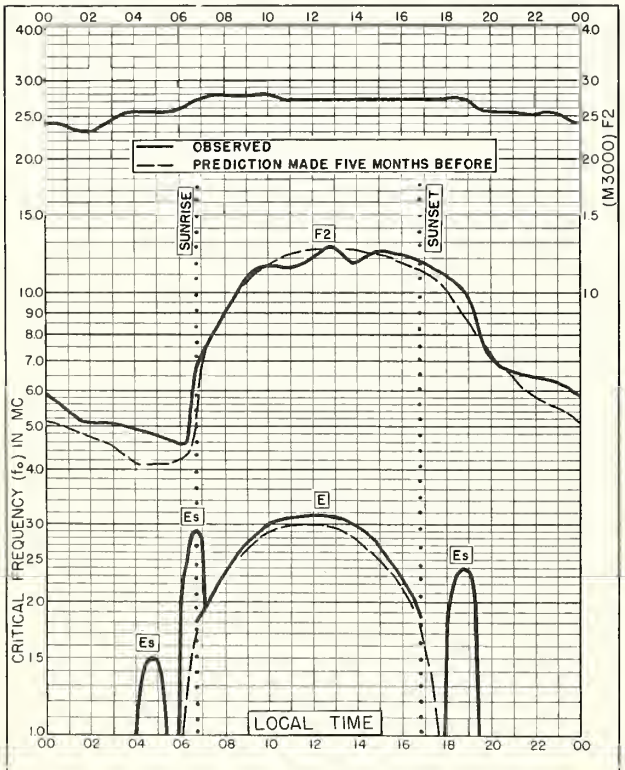


Fig. 39. OSLO, NORWAY
60.0°N, 11.1°E OCTOBER 1958

NBS 503

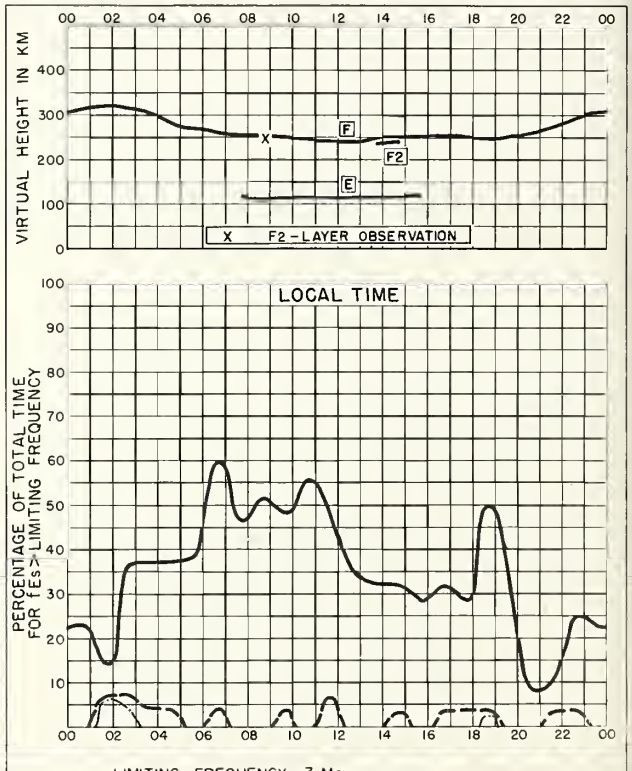


Fig. 40. OSLO, NORWAY OCTOBER 1958

NBS 490

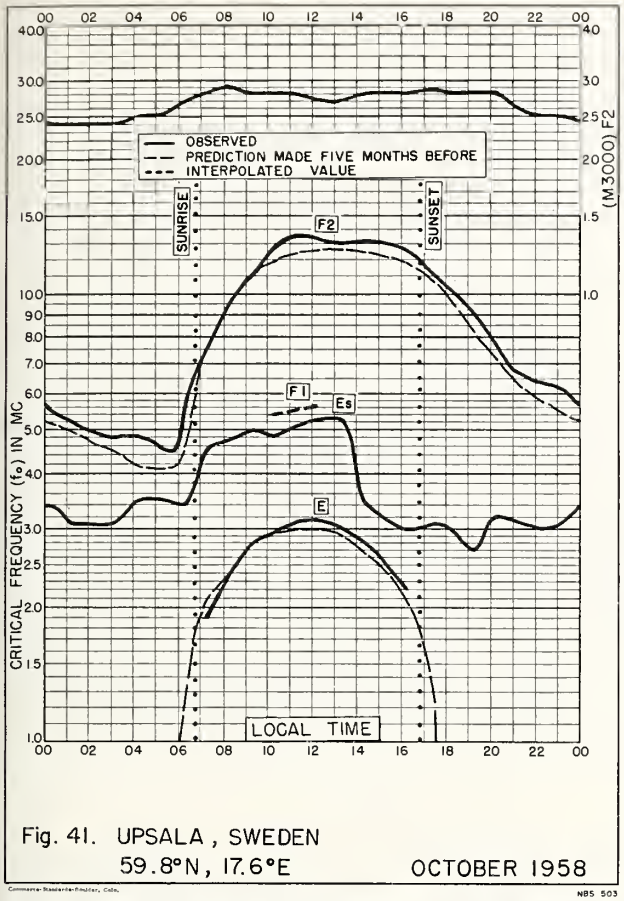


Fig. 41. UPSALA, SWEDEN
59.8°N, 17.6°E OCTOBER 1958

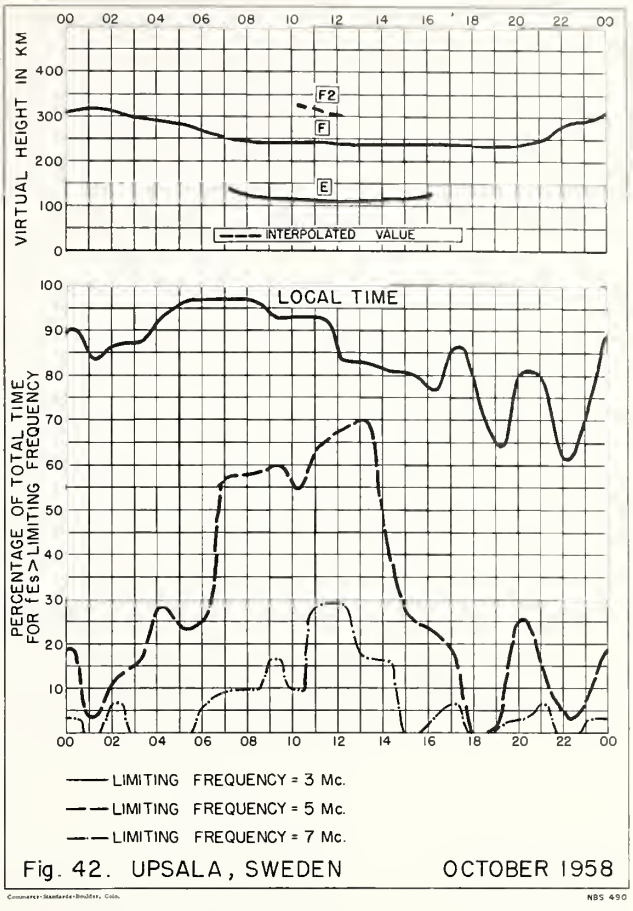


Fig. 42. UPSALA, SWEDEN OCTOBER 1958

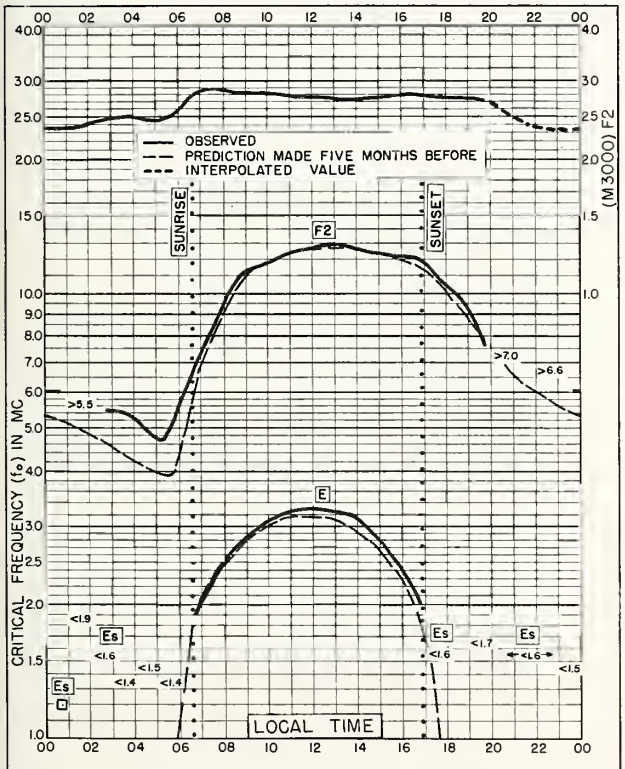


Fig. 43. INVERNESS, SCOTLAND
57.4°N, 4.2°W OCTOBER 1958

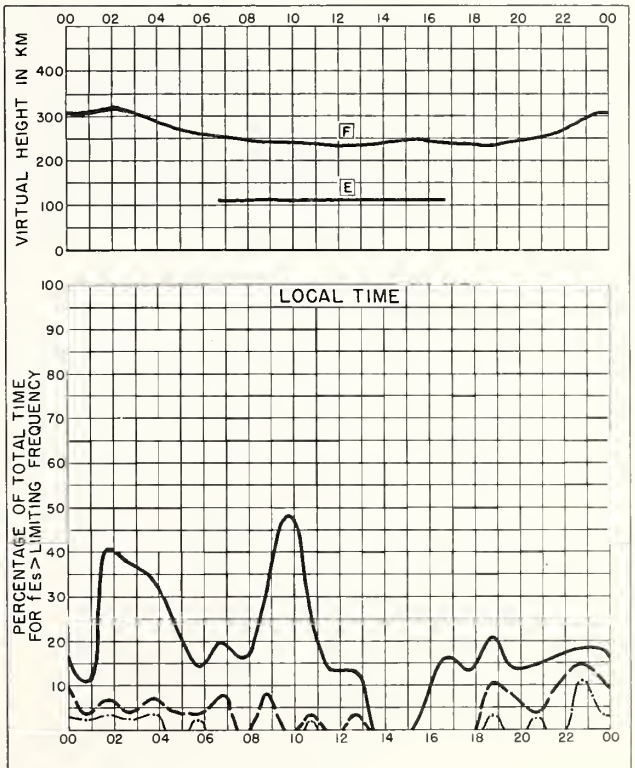


Fig. 44. INVERNESS, SCOTLAND OCTOBER 1958

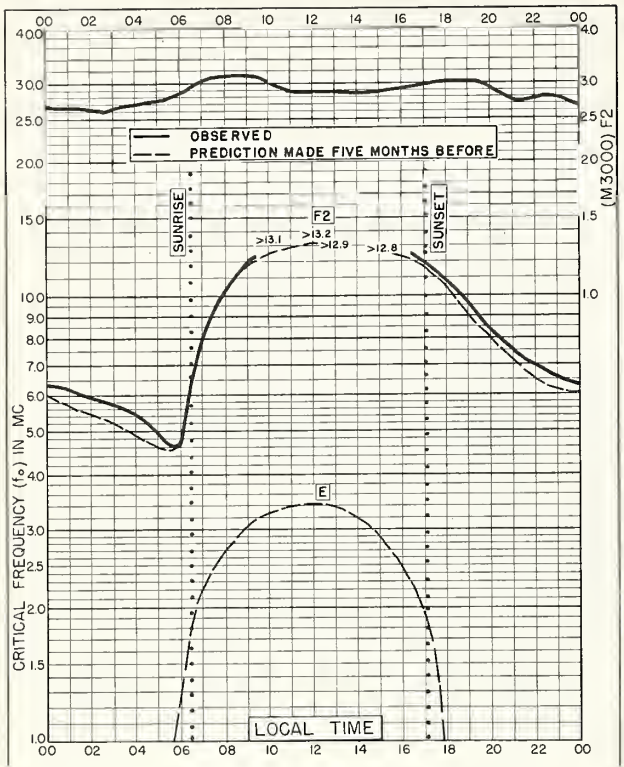


Fig. 45. De BILT, HOLLAND
52.1°N, 5.2°E OCTOBER 1958

NBS 503

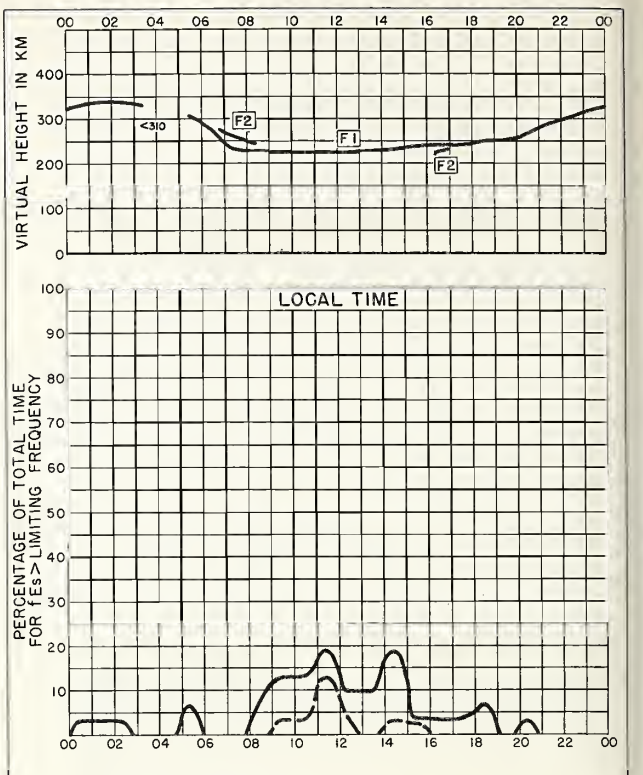


Fig. 46. De BILT, HOLLAND OCTOBER 1958

NBS 490

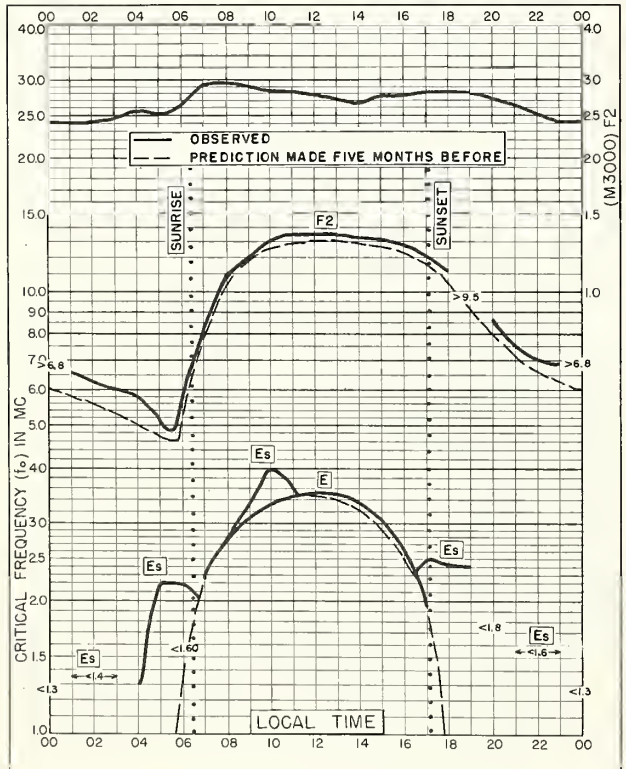


Fig. 47. SLOUGH, ENGLAND
51.5°N, 0.6°W OCTOBER 1958

NBS 503

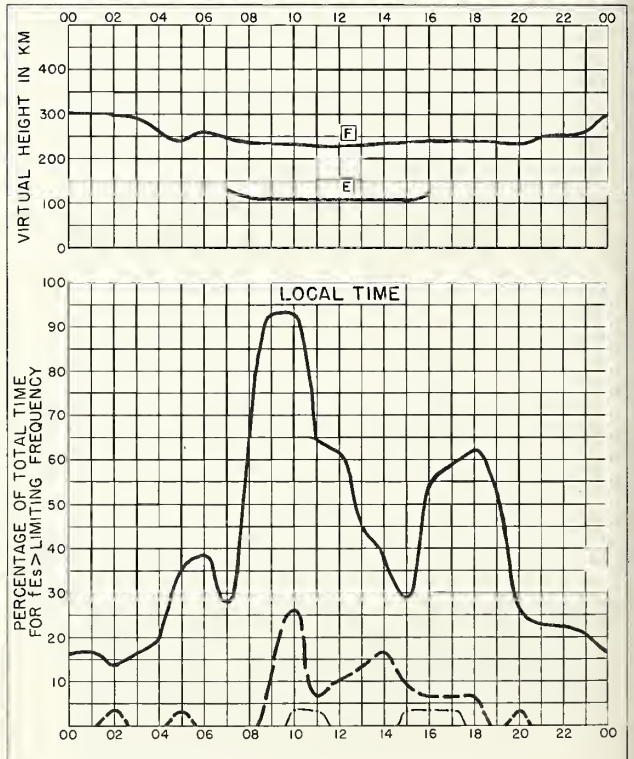


Fig. 48. SLOUGH, ENGLAND OCTOBER 1958

NBS 490

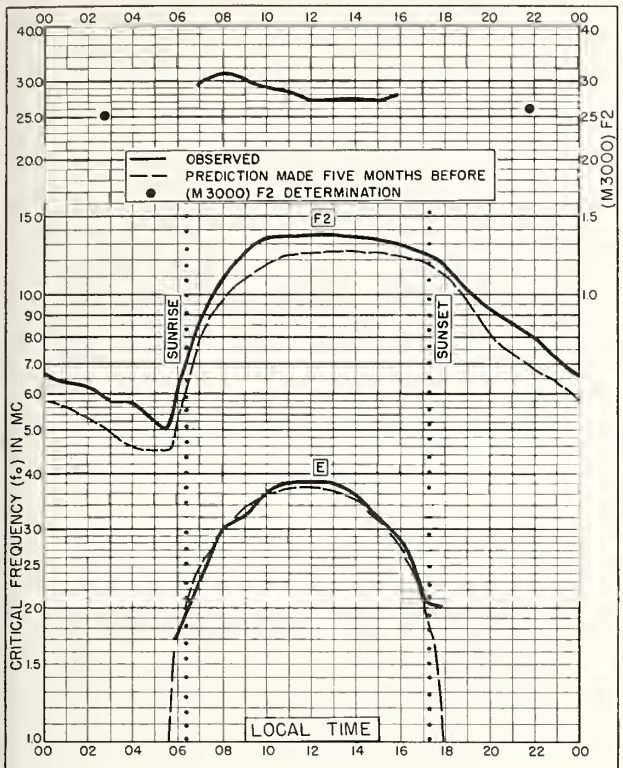


Fig. 49. OTTAWA, CANADA
45.4°N, 75.9°W OCTOBER 1958

NBS 503

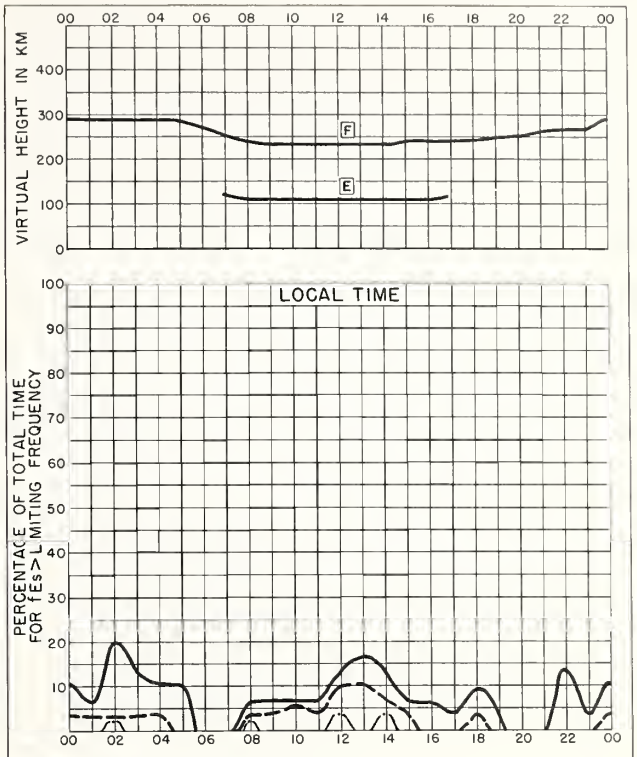


Fig. 50. OTTAWA, CANADA OCTOBER 1958

NBS 490

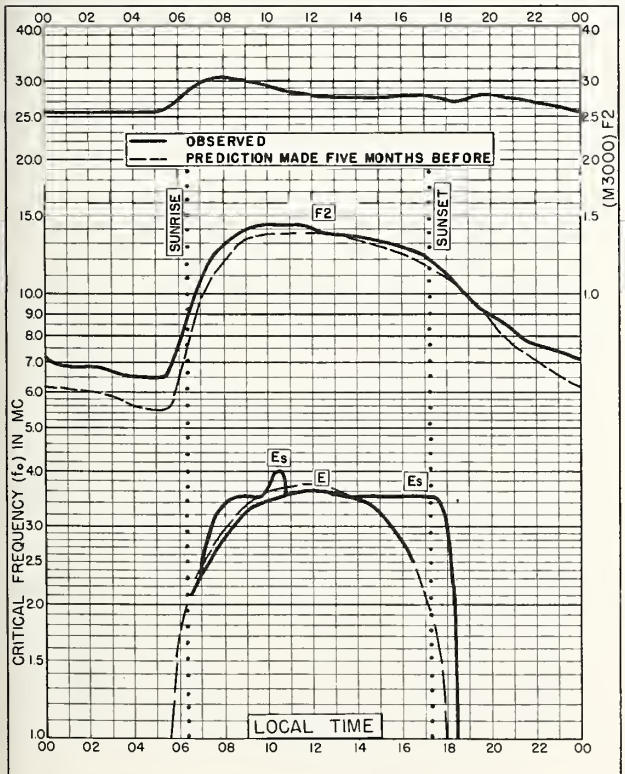


Fig. 51. WAKKANAI, JAPAN
45.4°N, 141.7°E OCTOBER 1958

NBS 503

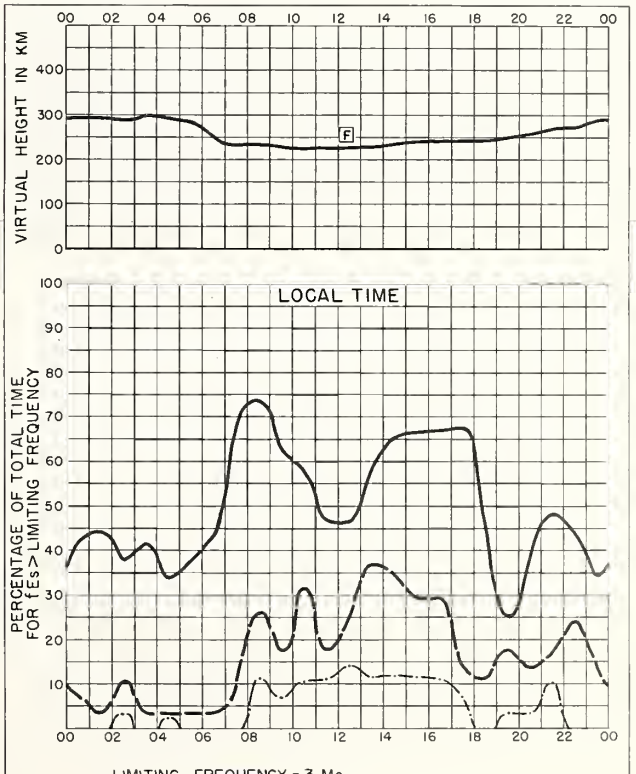


Fig. 52. WAKKANAI, JAPAN OCTOBER 1958

NBS 490

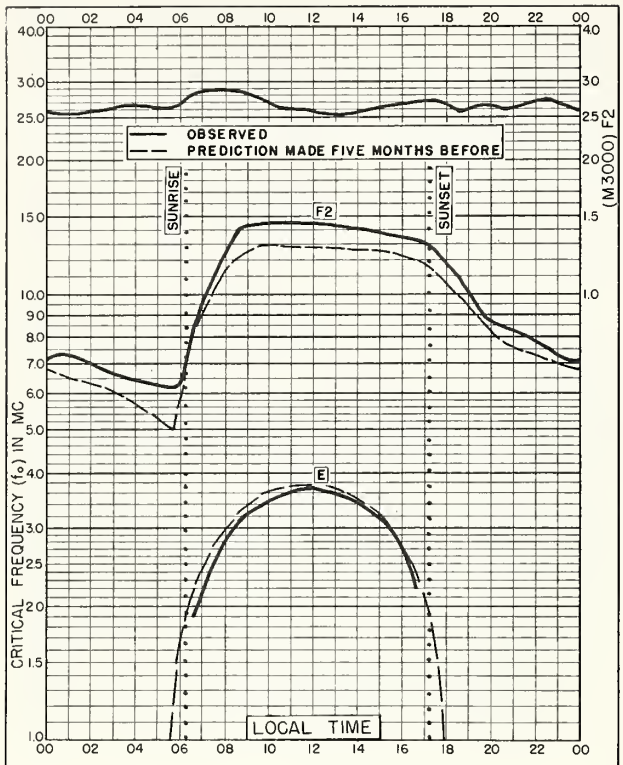


Fig. 53. MONTE CAPELLINO, ITALY
44.6°N, 9.0°E OCTOBER 1958

NBS 503

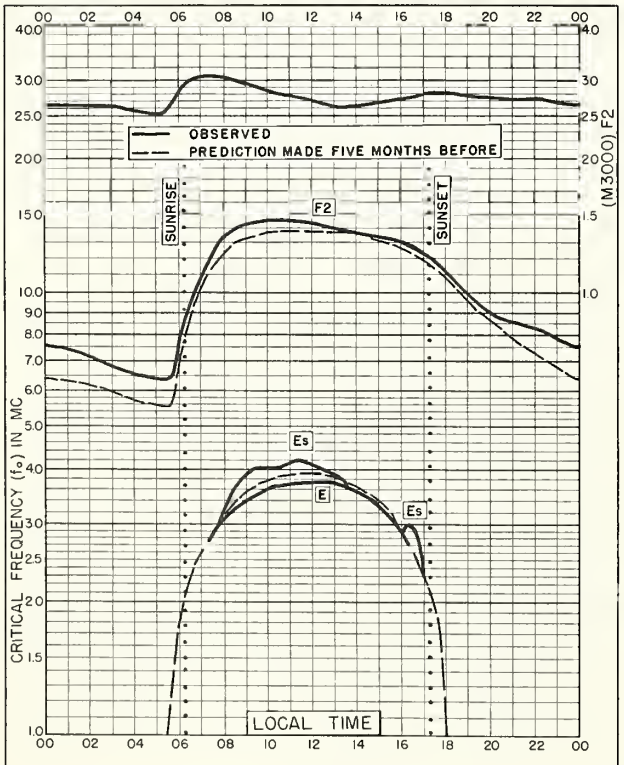


Fig. 54. AKITA, JAPAN
39.7°N, 140.1°E OCTOBER 1958

NBS 503

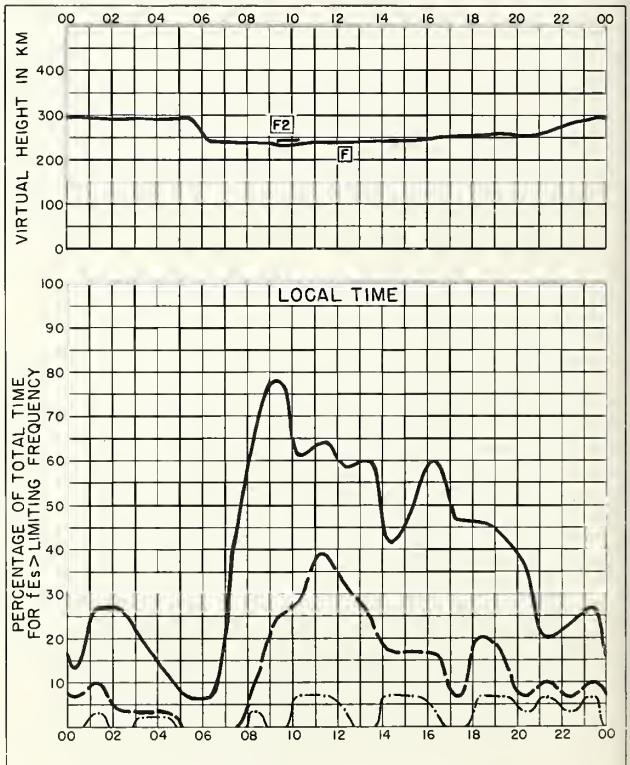


Fig. 55. AKITA, JAPAN OCTOBER 1958

NBS 490

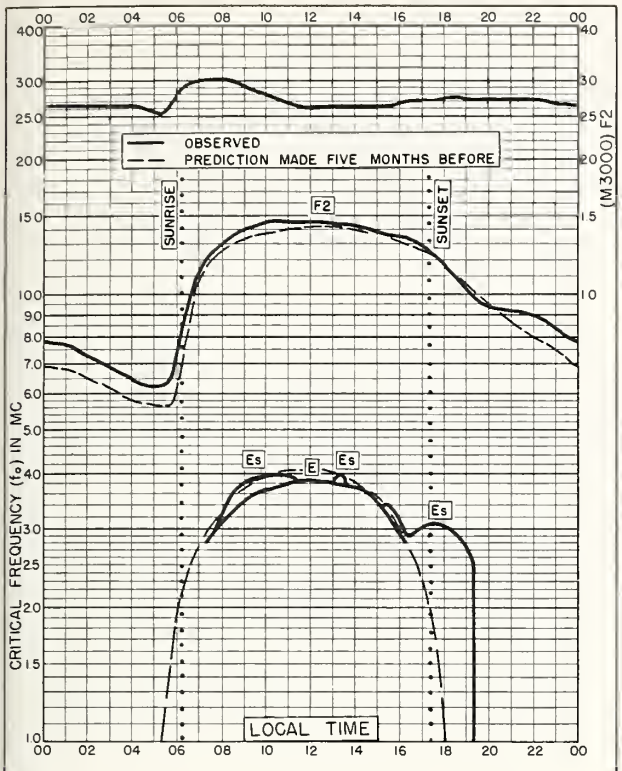


Fig. 56. TOKYO, JAPAN
35.7°N, 139.5°E OCTOBER 1958

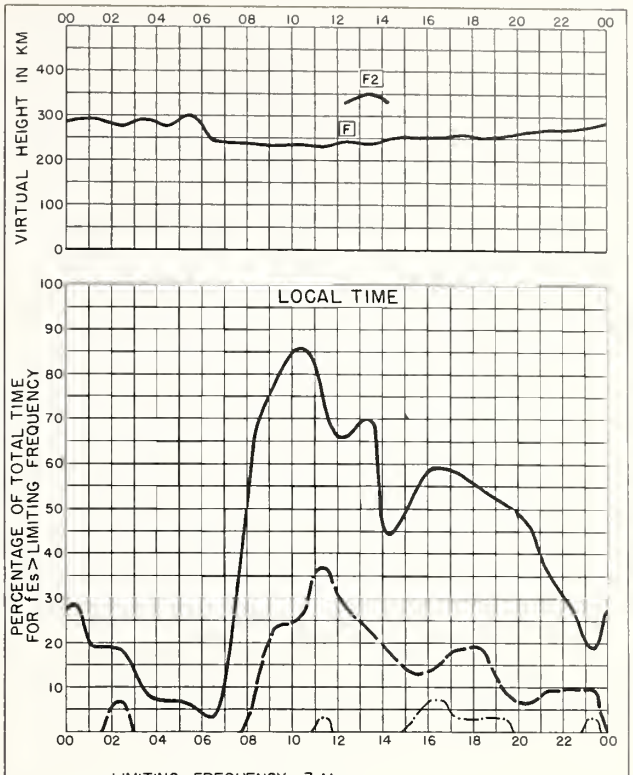


Fig. 57. TOKYO, JAPAN OCTOBER 1958

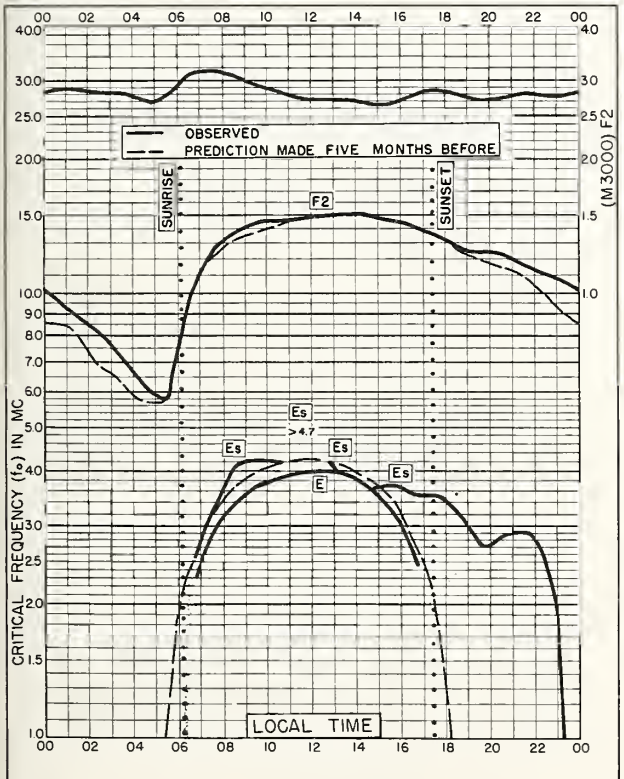


Fig. 58. YAMAGAWA, JAPAN
31.2°N, 130.6°E OCTOBER 1958

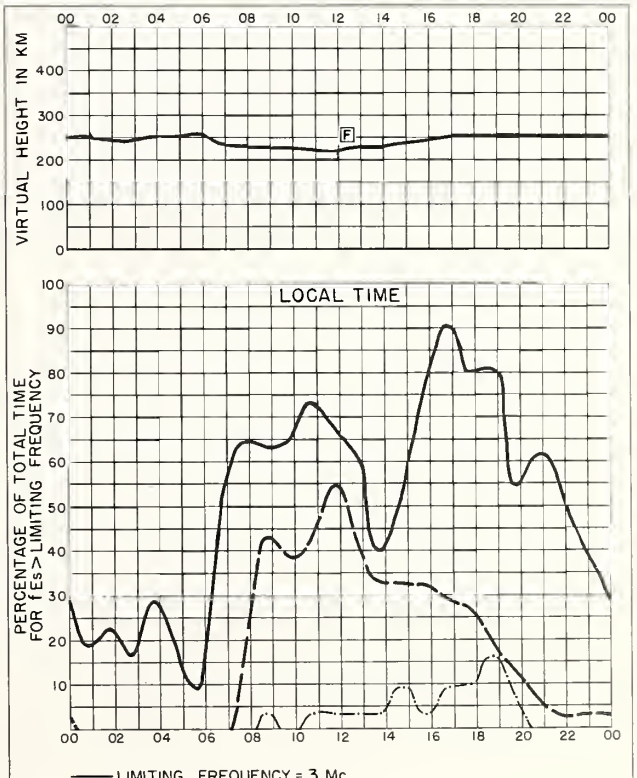


Fig. 59. YAMAGAWA, JAPAN OCTOBER 1958

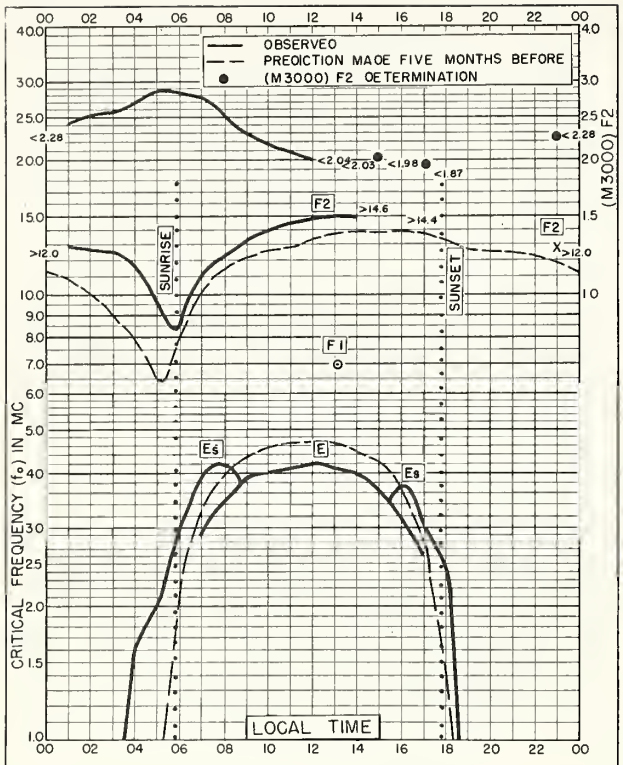


Fig. 60. BUNIA, BELGIAN CONGO
1.5°N, 30.2°E OCTOBER 1958

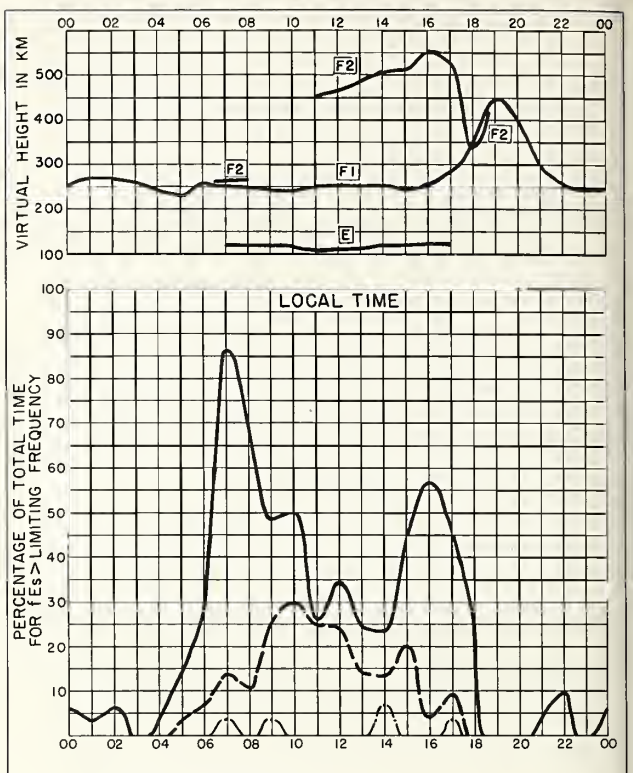


Fig. 61. BUNIA, BELGIAN CONGO OCTOBER 1958

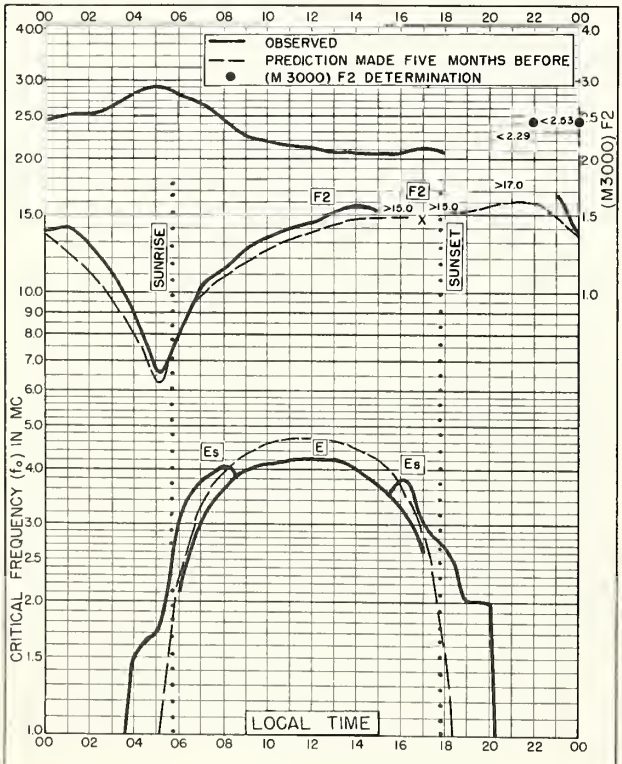


Fig. 62. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E OCTOBER 1958

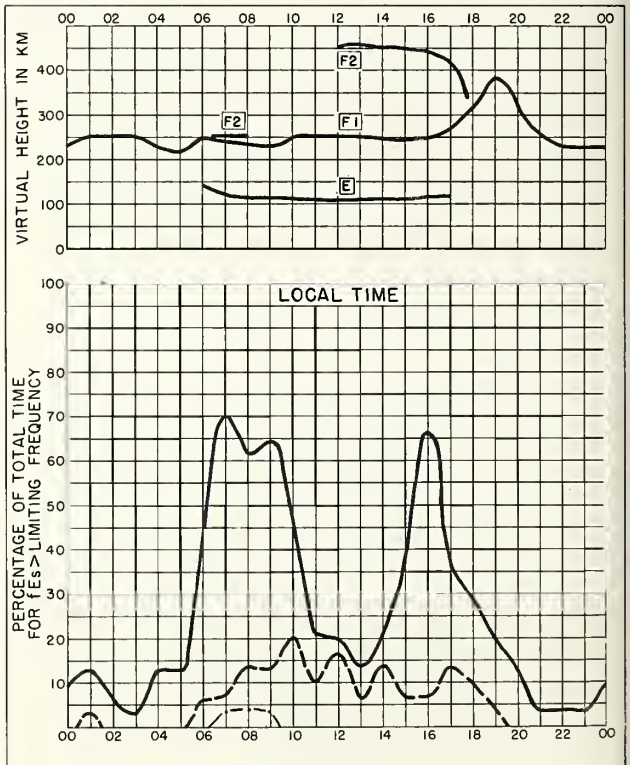


Fig. 63. LEOPOLDVILLE, BELGIAN CONGO OCTOBER 1958

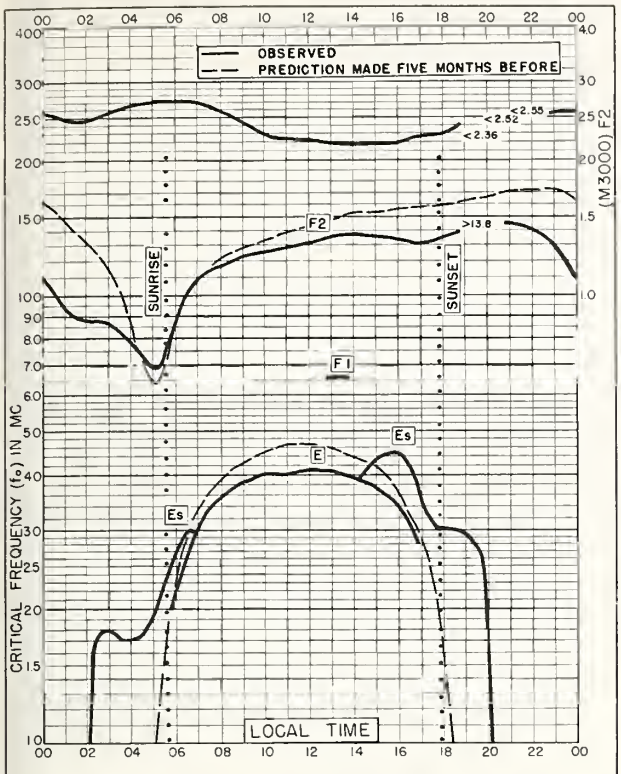


Fig. 64. ELISABETHVILLE, BELGIAN CONGO
11.6°S, 27.5°E OCTOBER 1958

NBS 503

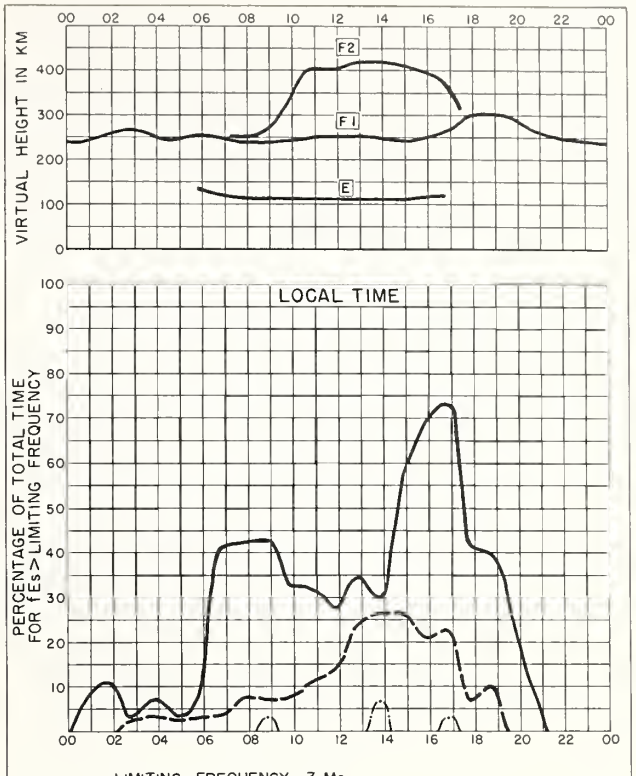


Fig. 65. ELISABETHVILLE, BELGIAN CONGO
OCTOBER 1958

NBS 490

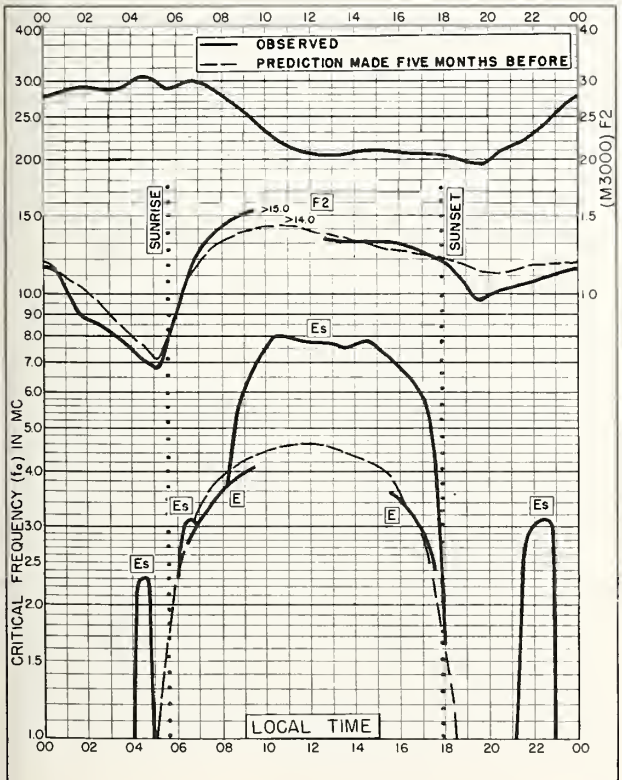


Fig. 66. La PAZ, BOLIVIA
16.5°S, 68.0°W OCTOBER 1958

NBS 503

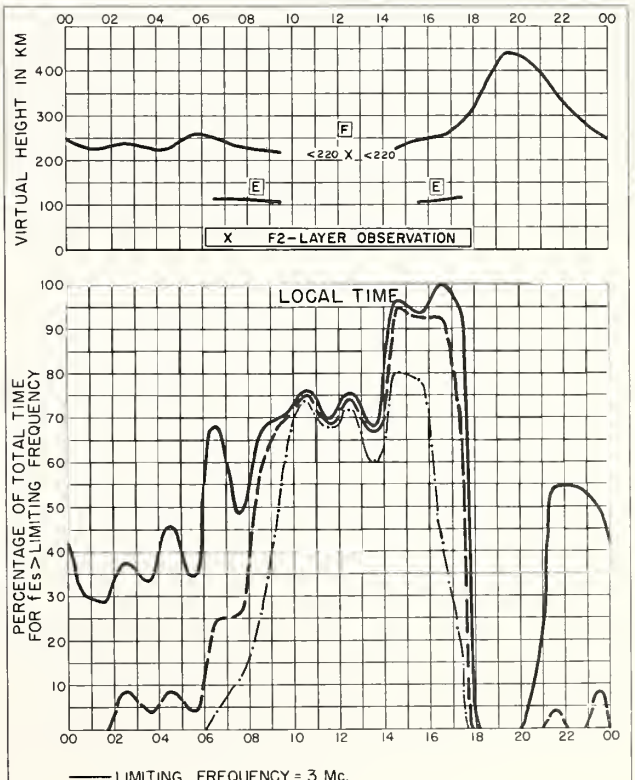


Fig. 67. La PAZ, BOLIVIA OCTOBER 1958

NBS 490

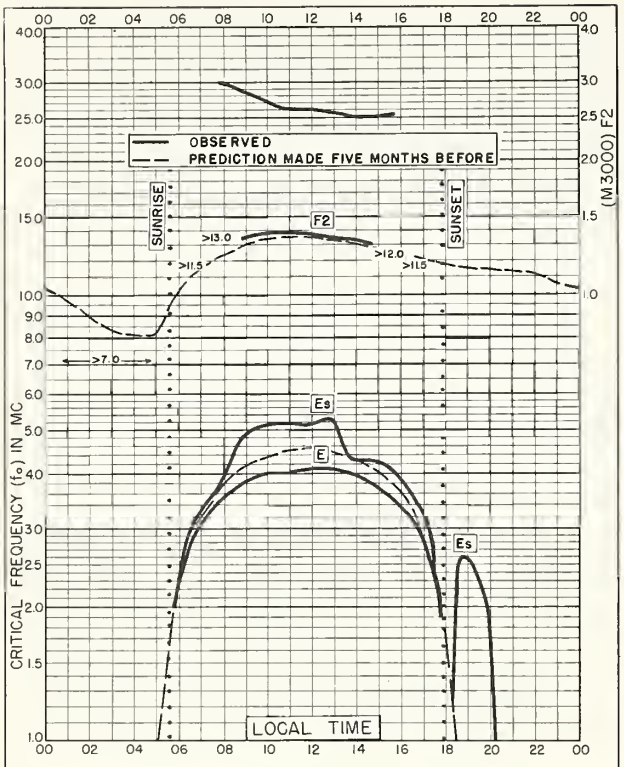


Fig. 68. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E OCTOBER 1958

NBS 503

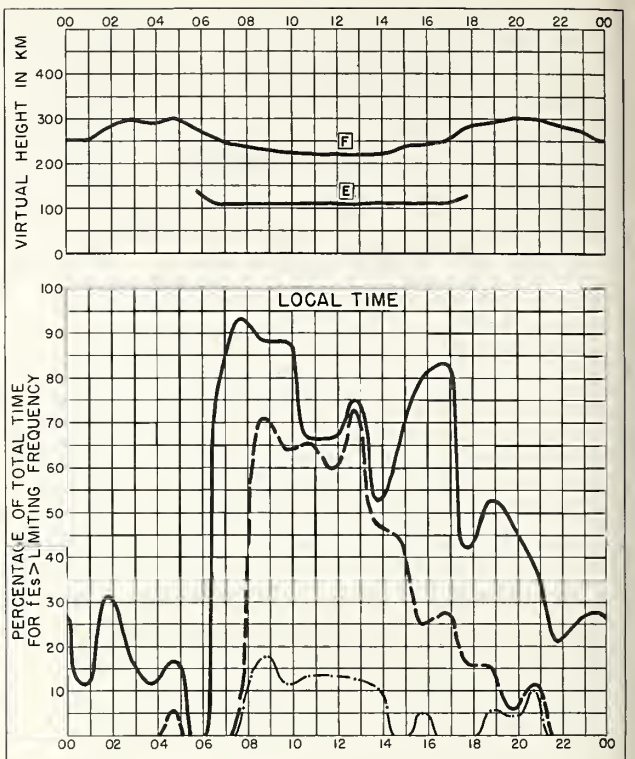


Fig. 69. TOWNSVILLE, AUSTRALIA OCTOBER 1958

NBS 490

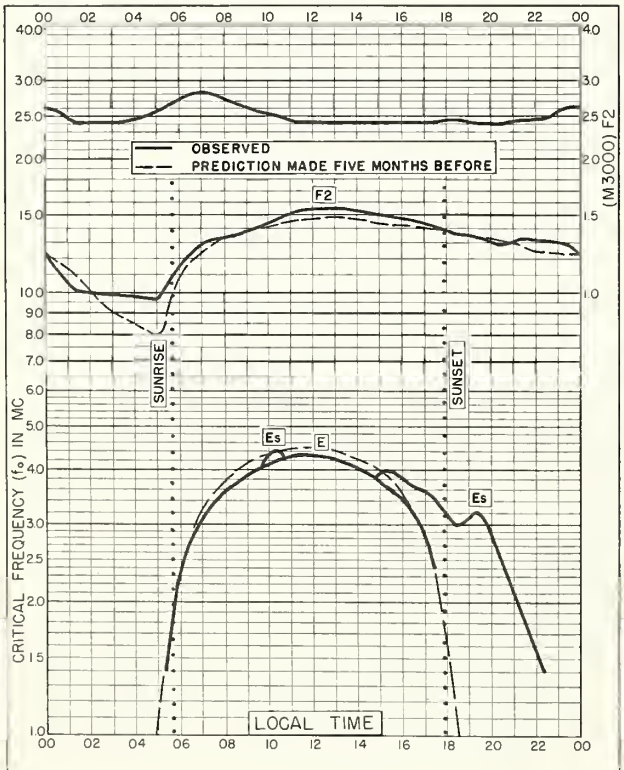


Fig. 70. RAROTONGA I.
21.2°S, 159.8°W OCTOBER 1958

NBS 503

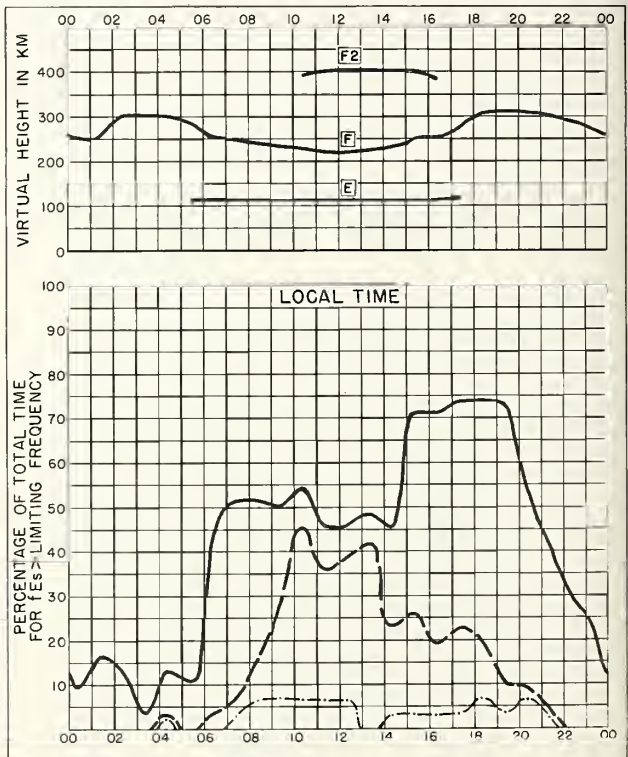


Fig. 71. RAROTONGA I. OCTOBER 1958

NBS 490

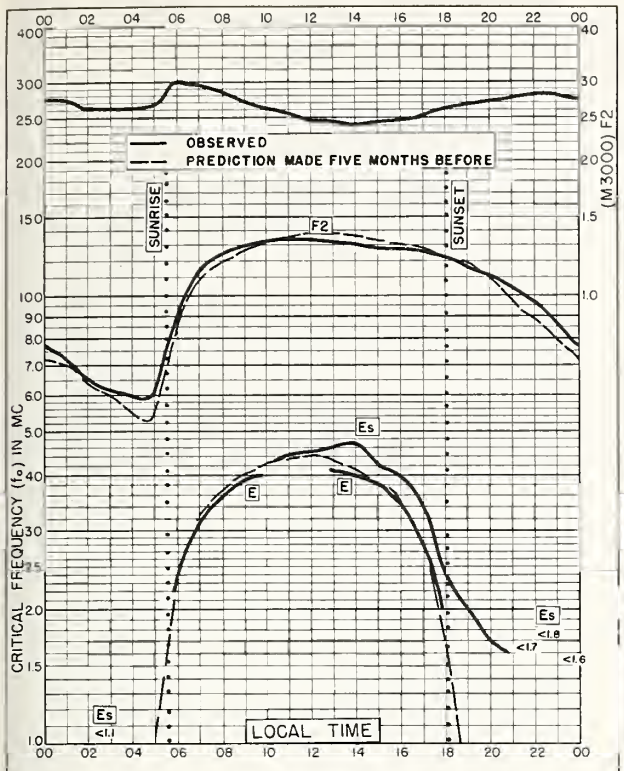
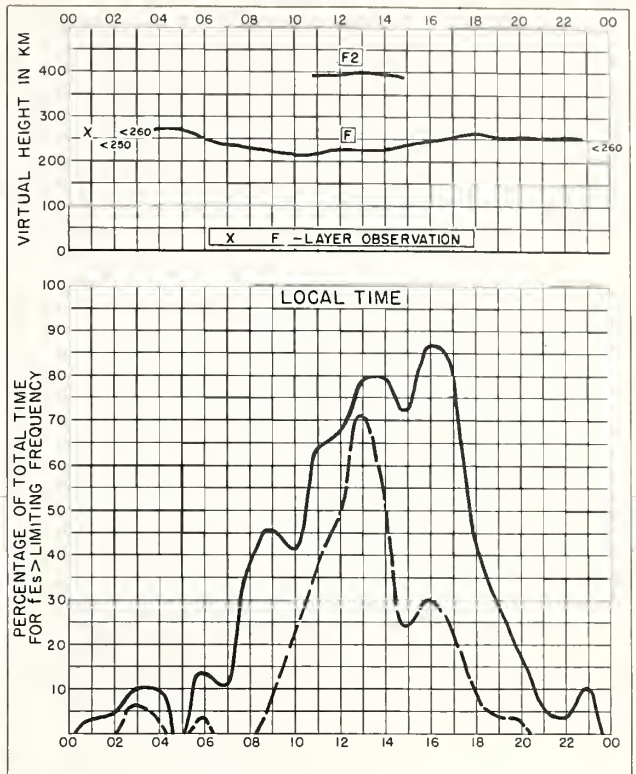


Fig. 72. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.0°E OCTOBER 1958

NBS 503



OCTOBER 1958

Fig. 73. JOHANNESBURG, UNION OF S. AFRICA

NBS 490

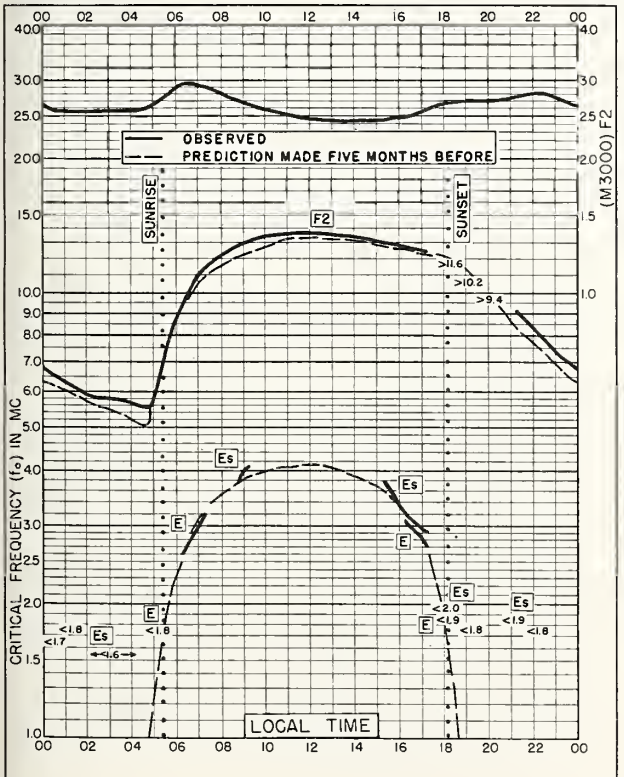
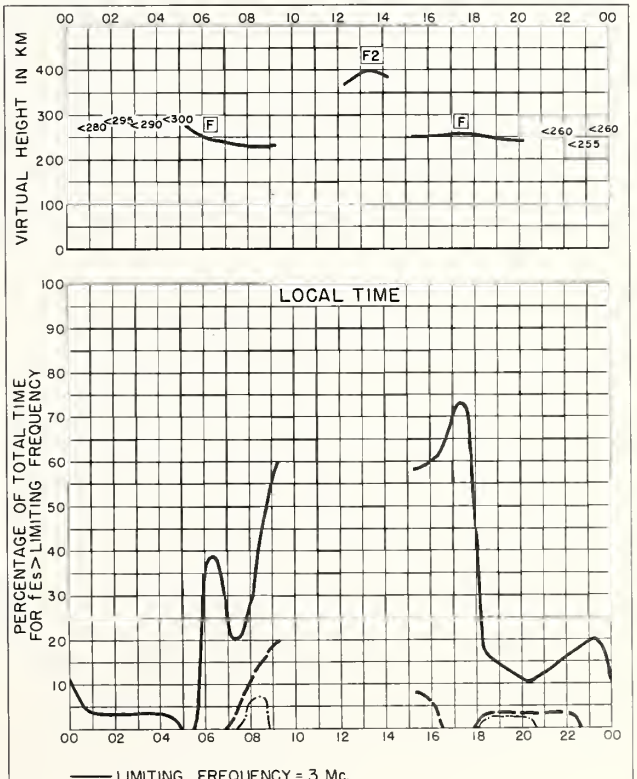


Fig. 74. CAPETOWN, UNION OF S. AFRICA
34.1°S, 18.3°E OCTOBER 1958

NBS 503



OCTOBER 1958

Fig. 75. CAPETOWN, UNION OF S. AFRICA

NBS 490

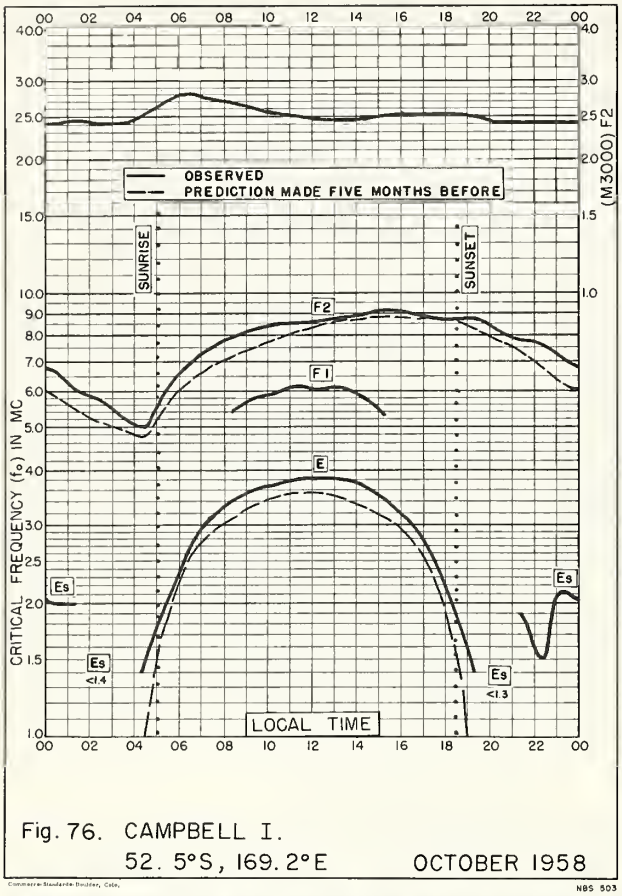


Fig. 76. CAMPBELL I.
52. 5°S, 169. 2°E OCTOBER 1958

NBS 503

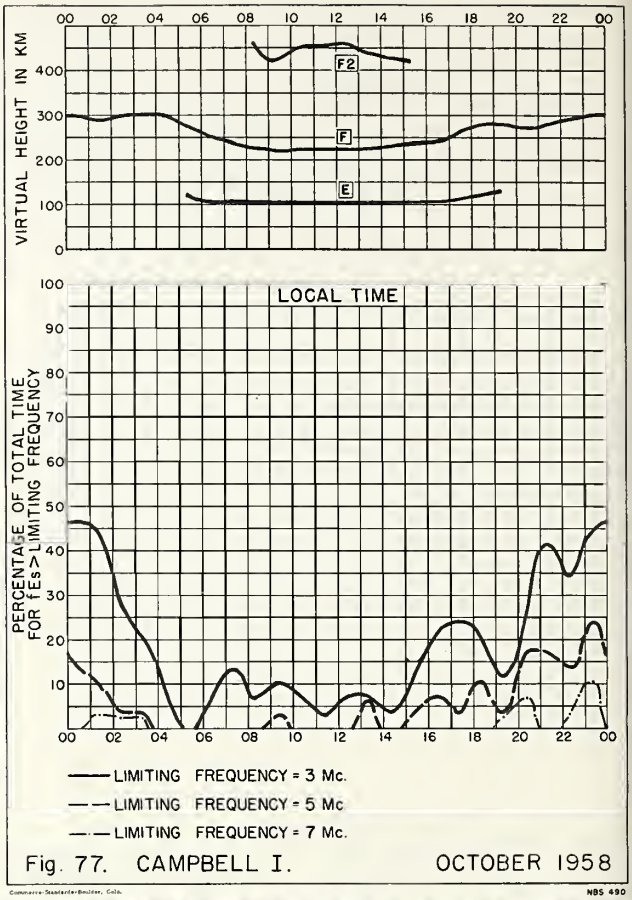


Fig. 77. CAMPBELL I. OCTOBER 1958

NBS 490

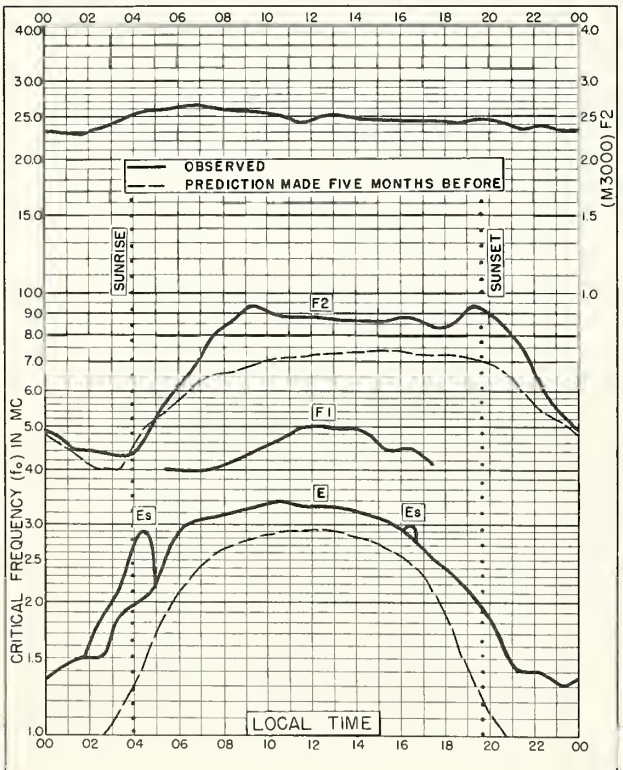


Fig. 78. CAPE HALLETT
72. 3°S, 170. 3°E OCTOBER 1958

NBS 503

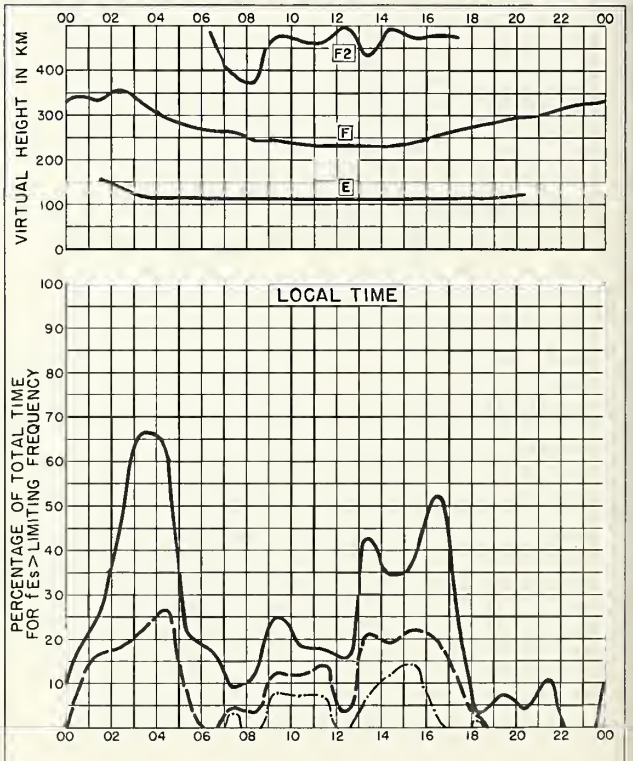


Fig. 79. CAPE HALLETT OCTOBER 1958

NBS 490

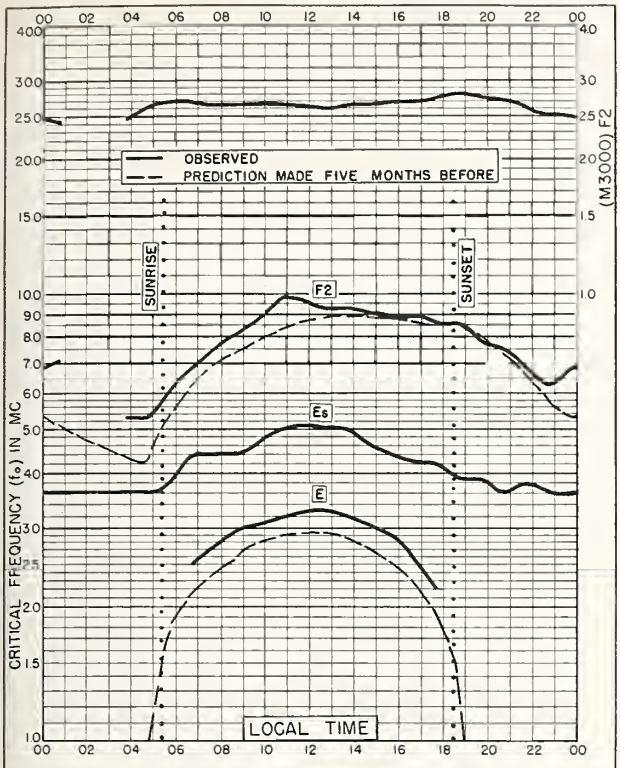


Fig. 80. SODANKYLA, FINLAND
67.4°N, 26.6°E SEPTEMBER 1958

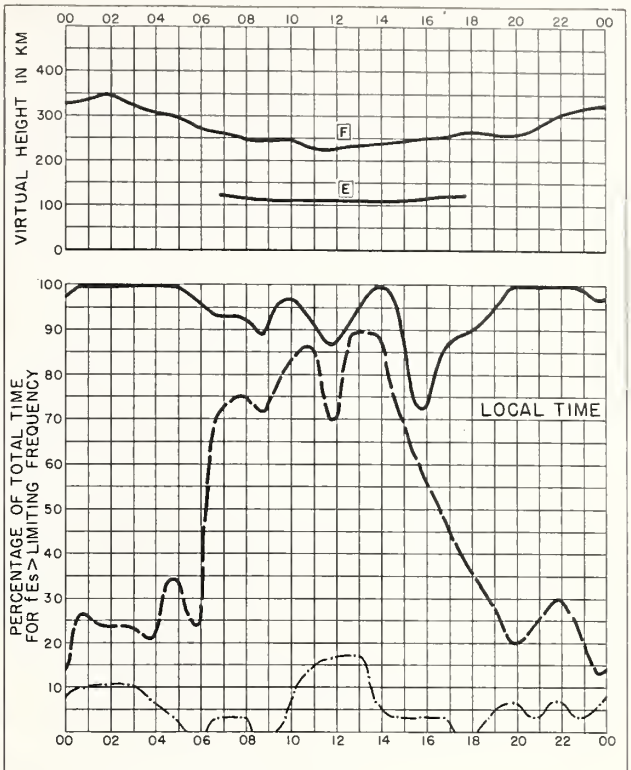


Fig. 81. SODANKYLA, FINLAND SEPTEMBER 1958

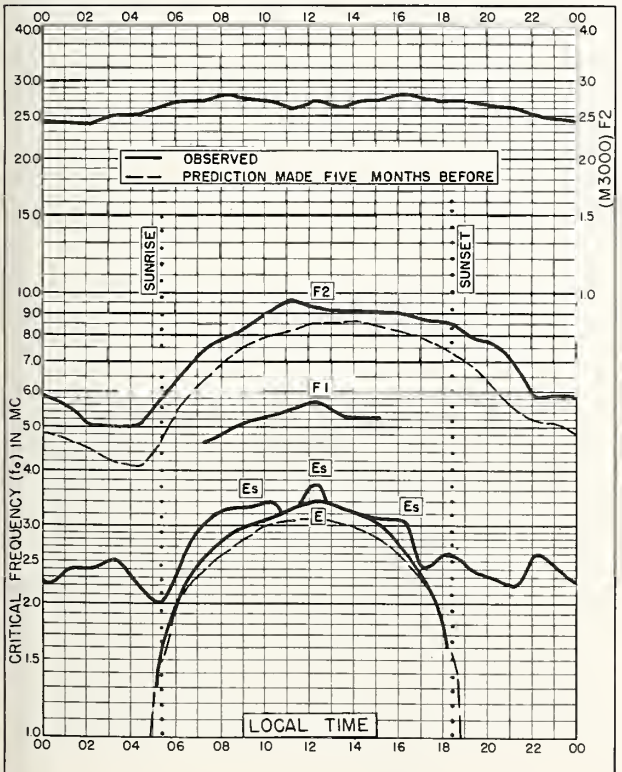


Fig. 82. LYCKSELE, SWEDEN
64.6°N, 18.8°E SEPTEMBER 1958

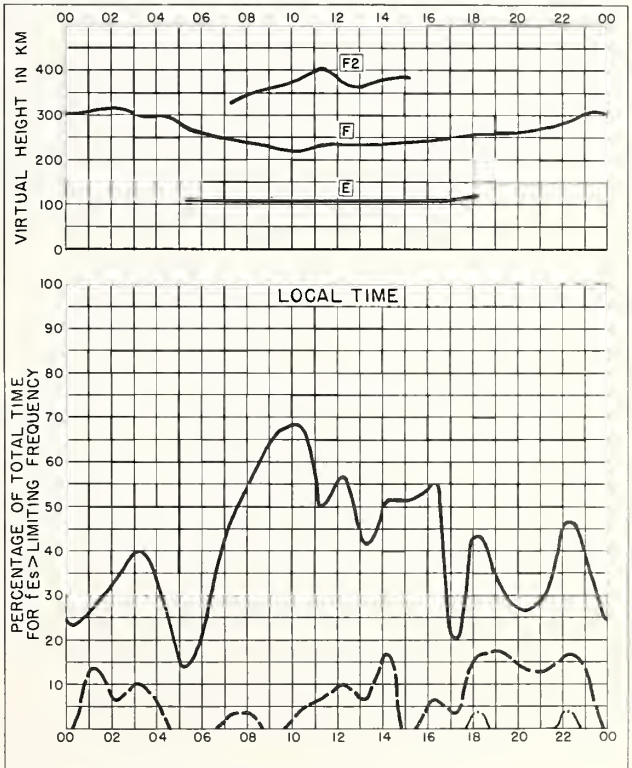


Fig. 83. LYCKSELE, SWEDEN SEPTEMBER 1958

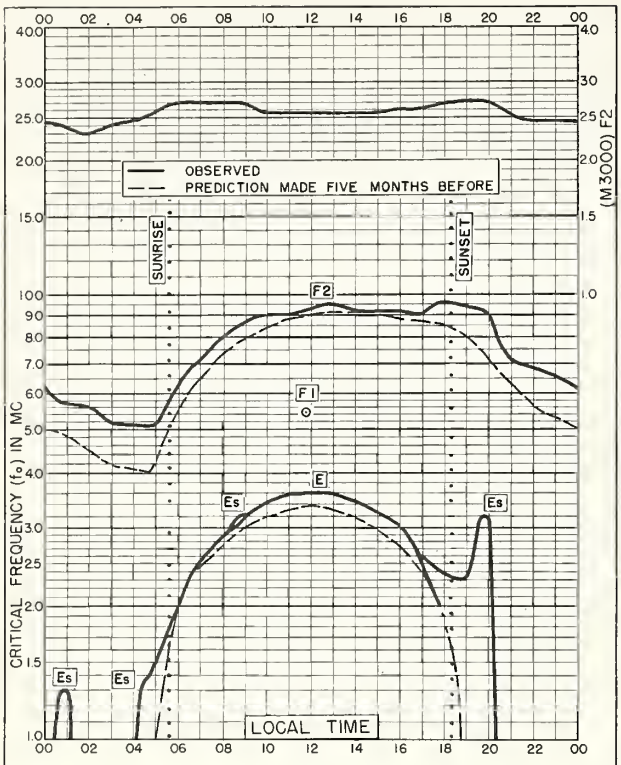


Fig. 84. OSLO, NORWAY
60.0°N, 11.1°E SEPTEMBER 1958

NBS 503

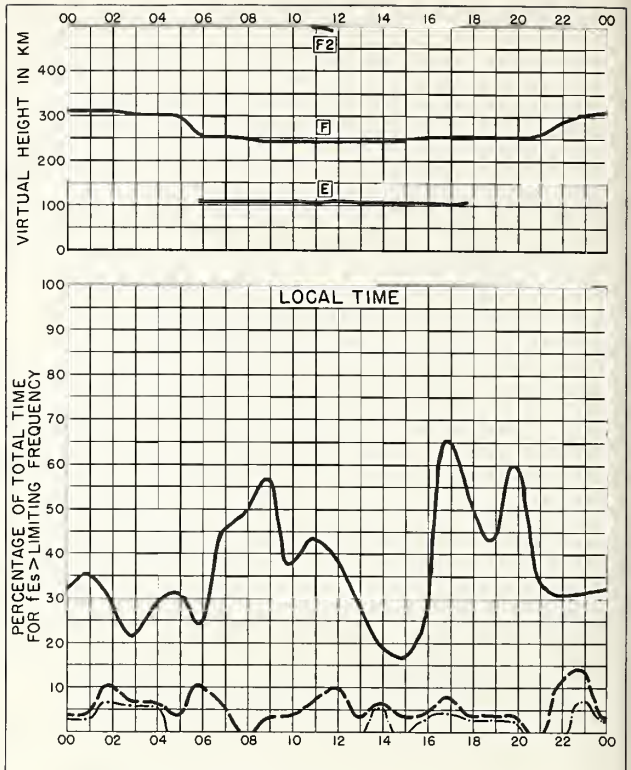


Fig. 85. OSLO, NORWAY SEPTEMBER 1958

NBS 490

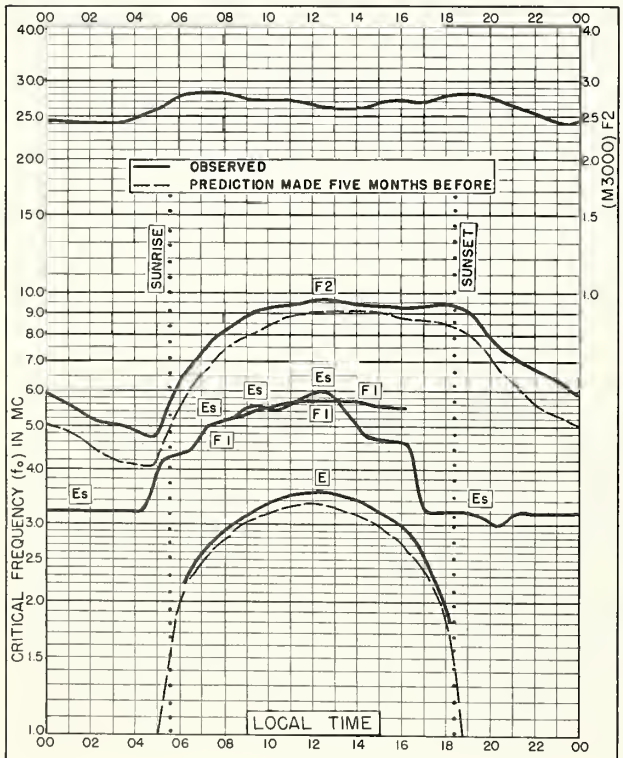


Fig. 86. UPSALA, SWEDEN
59.8°N, 17.6°E SEPTEMBER 1958

NBS 503

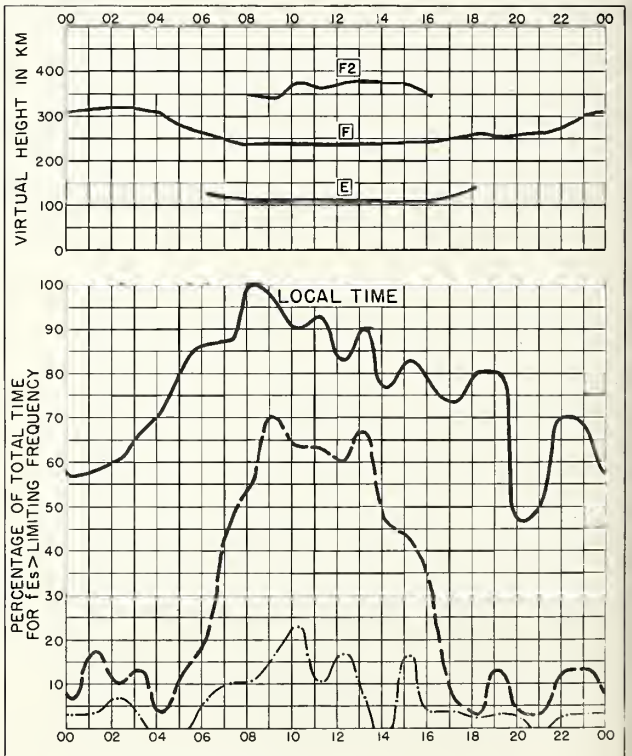


Fig. 87. UPSALA, SWEDEN SEPTEMBER 1958

NBS 490

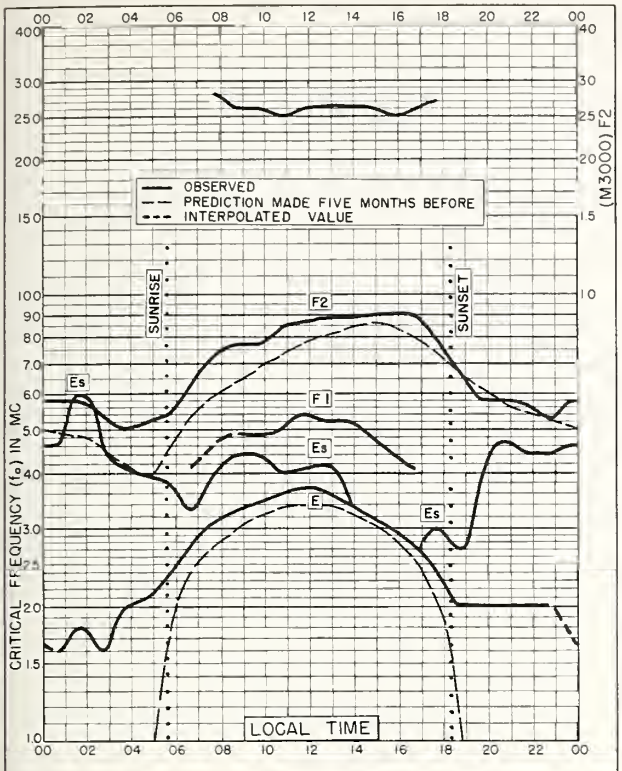


Fig. 88. CHURCHILL, CANADA
58.8°N, 94.2°W SEPTEMBER 1958

NBS 503

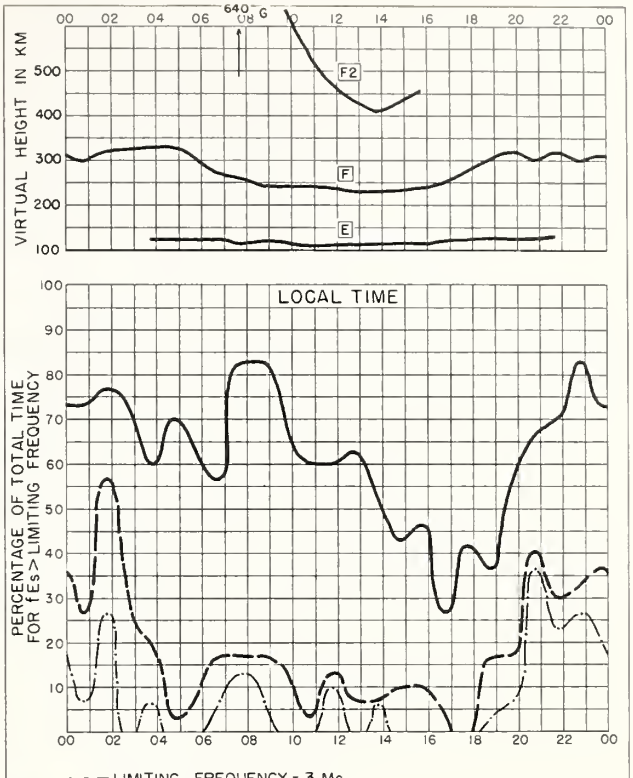


Fig. 89. CHURCHILL, CANADA SEPTEMBER 1958

NBS 490

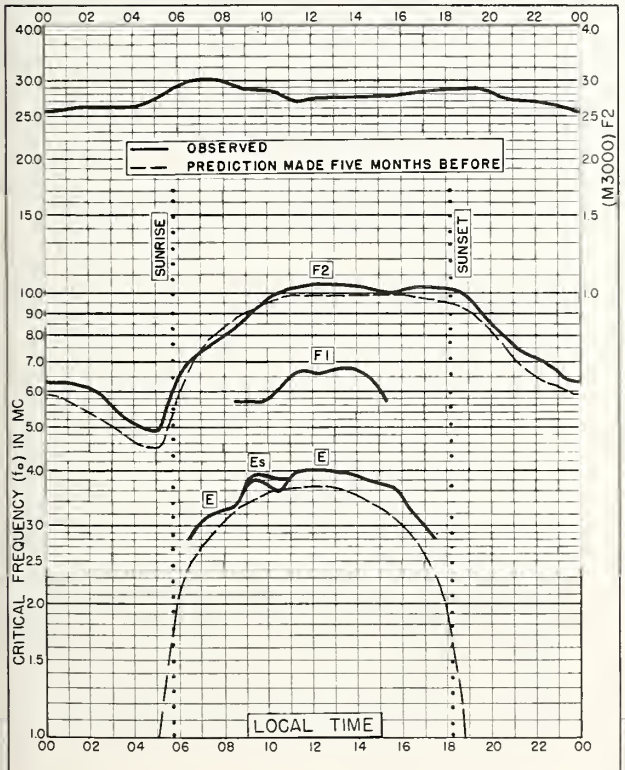


Fig. 90. De BILT, HOLLAND
52.1°N, 5.2°E SEPTEMBER 1958

NBS 503

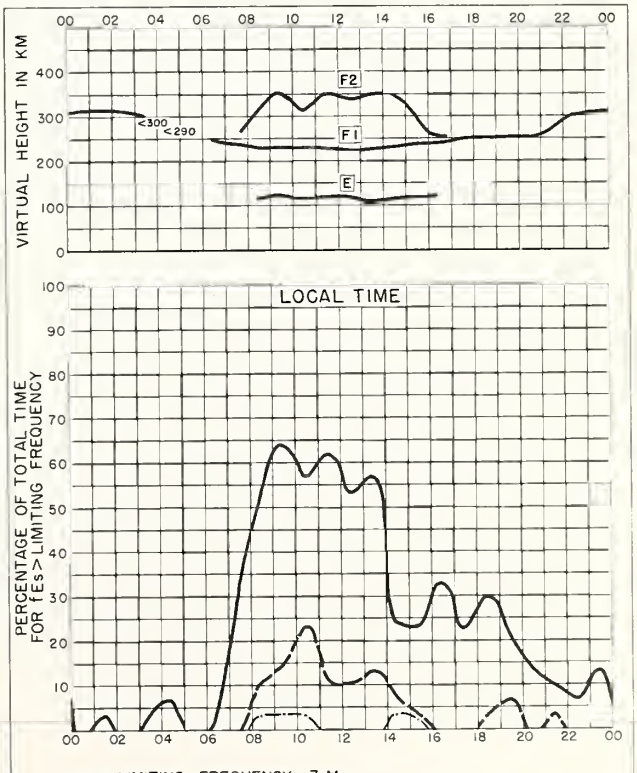


Fig. 91. De BILT, HOLLAND SEPTEMBER 1958

NBS 490

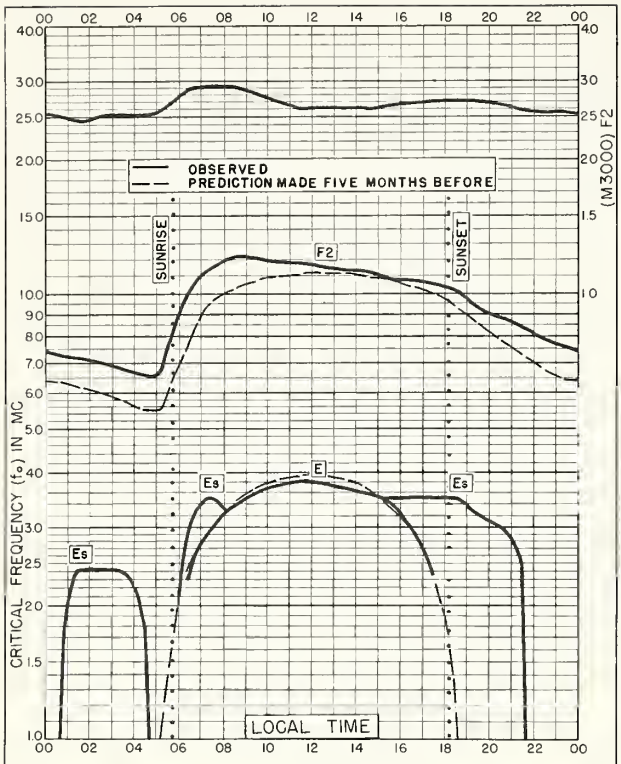


Fig. 92. WAKKANAI, JAPAN
45.4°N, 141.7°E SEPTEMBER 1958

NBS 503

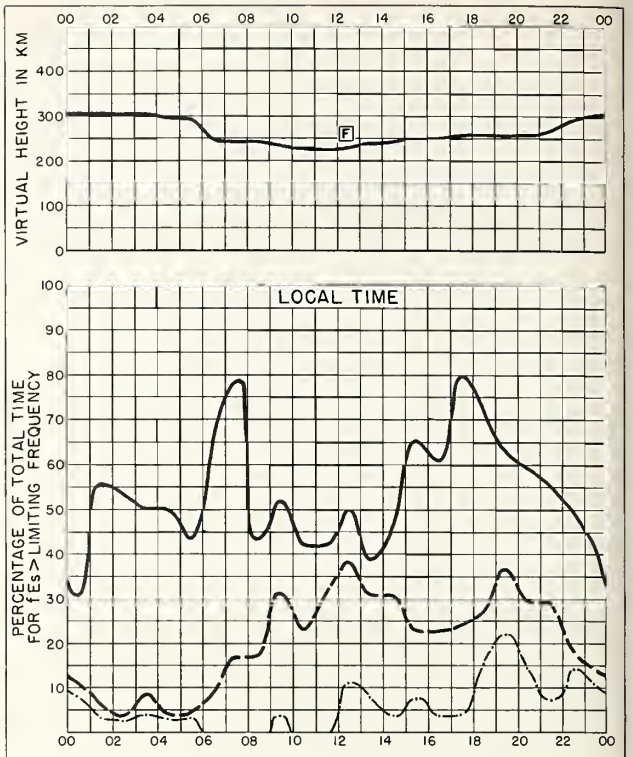


Fig. 93. WAKKANAI, JAPAN SEPTEMBER 1958

NBS 490

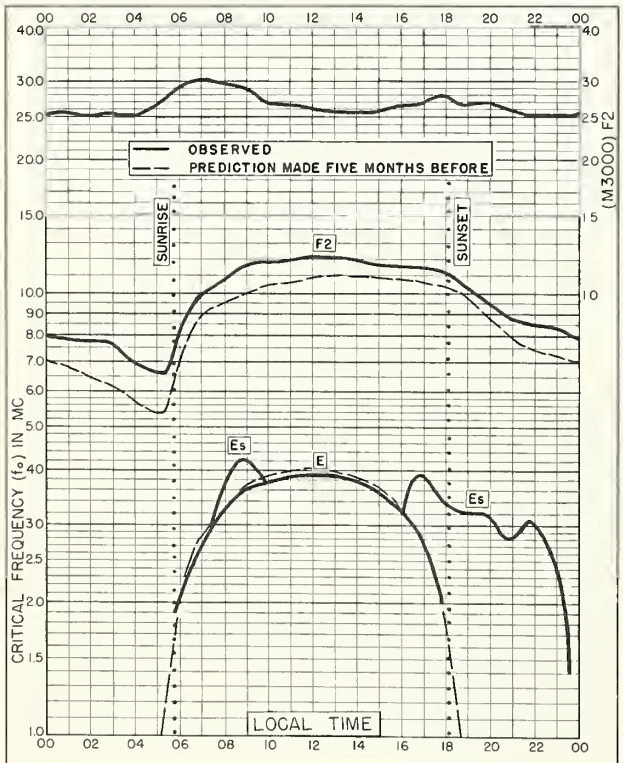


Fig. 94. ROME, ITALY
41.8°N, 12.5°E SEPTEMBER 1958

NBS 503

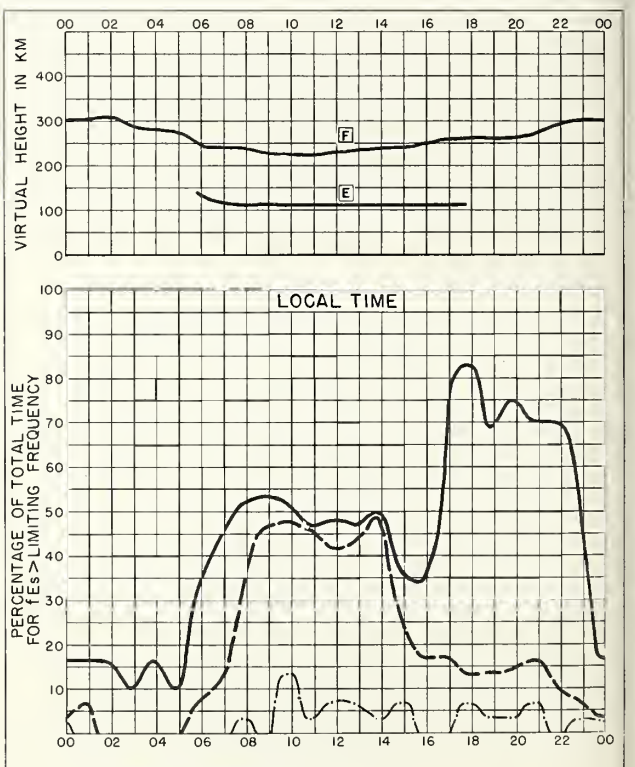


Fig. 95. ROME, ITALY SEPTEMBER 1958

NBS 490

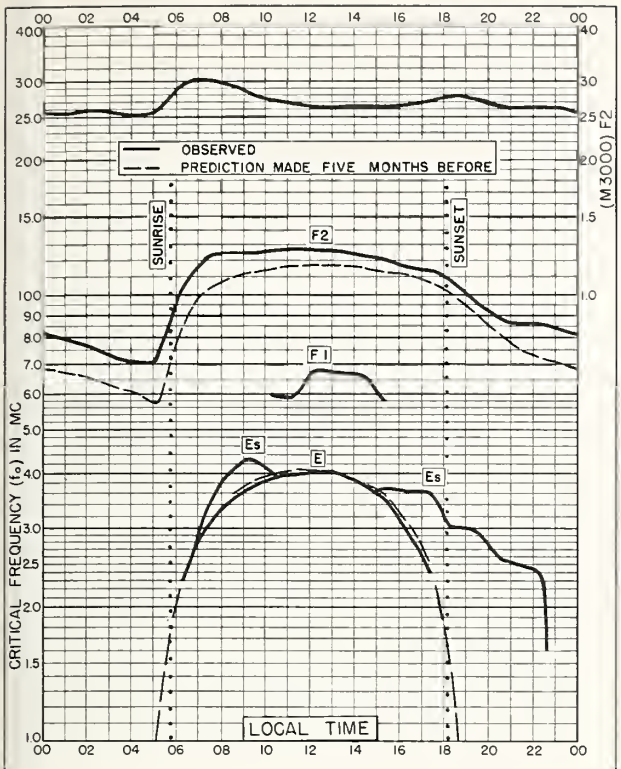


Fig. 96. AKITA, JAPAN
39.7°N, 140.1°E SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

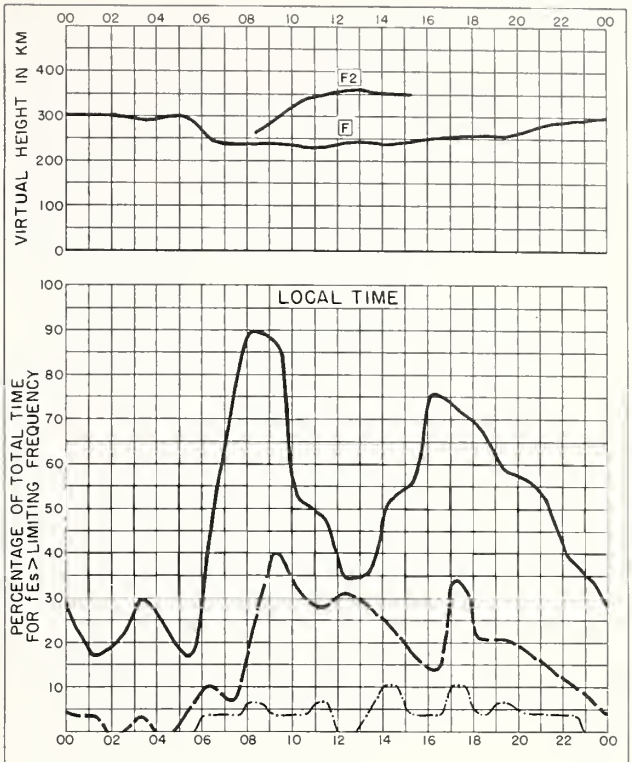


Fig. 97. AKITA, JAPAN SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

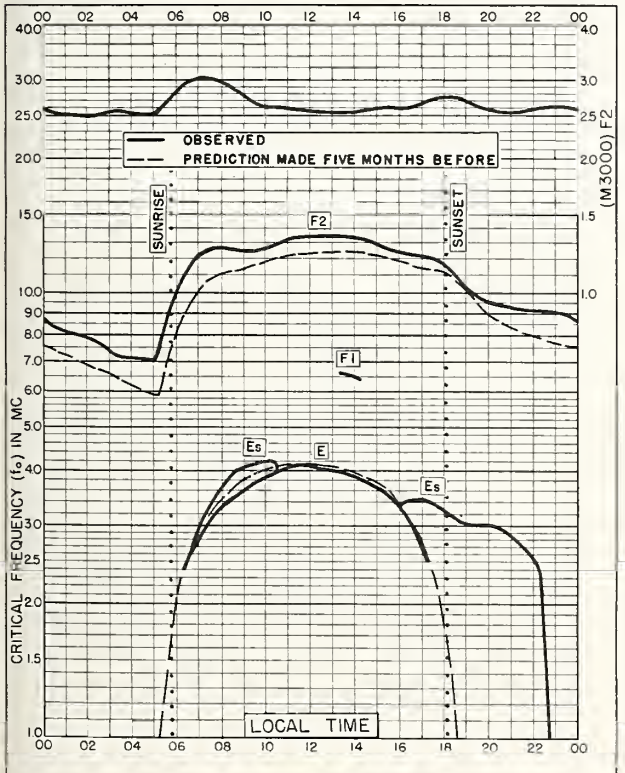


Fig. 98. TOKYO, JAPAN
35.7°N, 139.5°E SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

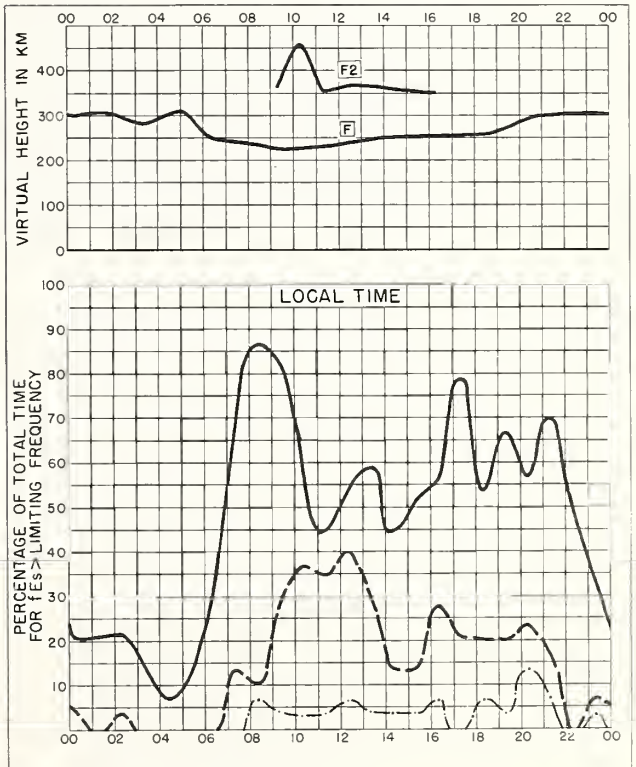


Fig. 99. TOKYO, JAPAN SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

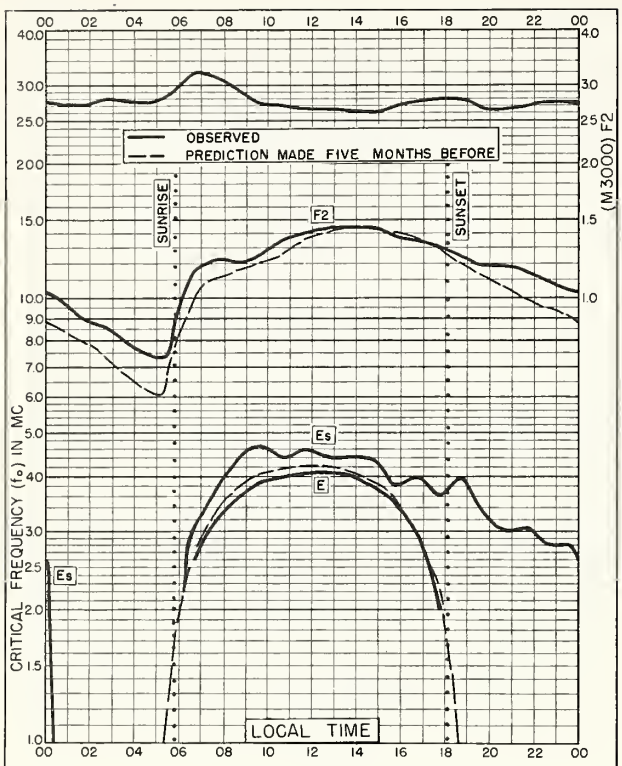


Fig. 100. YAMAGAWA, JAPAN
31.2°N, 130.6°E SEPTEMBER 1958

NBS 503

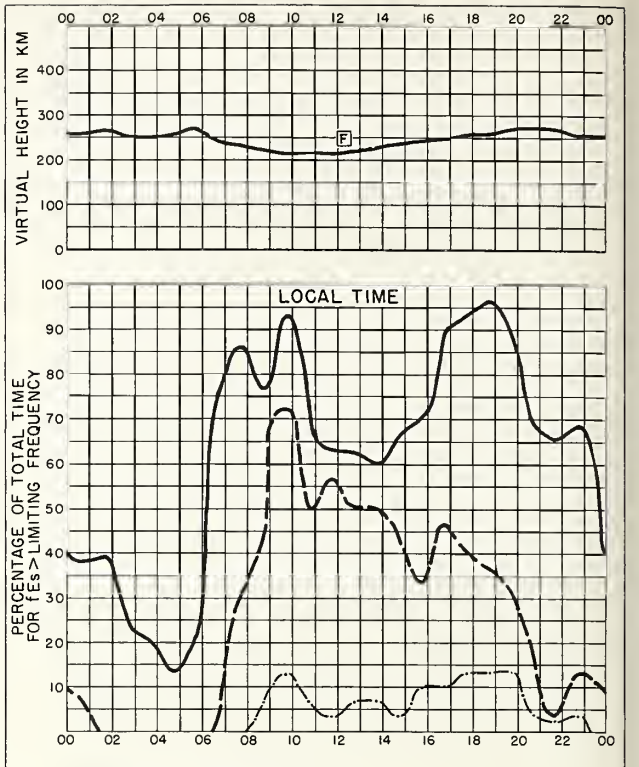


Fig. 101. YAMAGAWA, JAPAN SEPTEMBER 1958

NBS 490

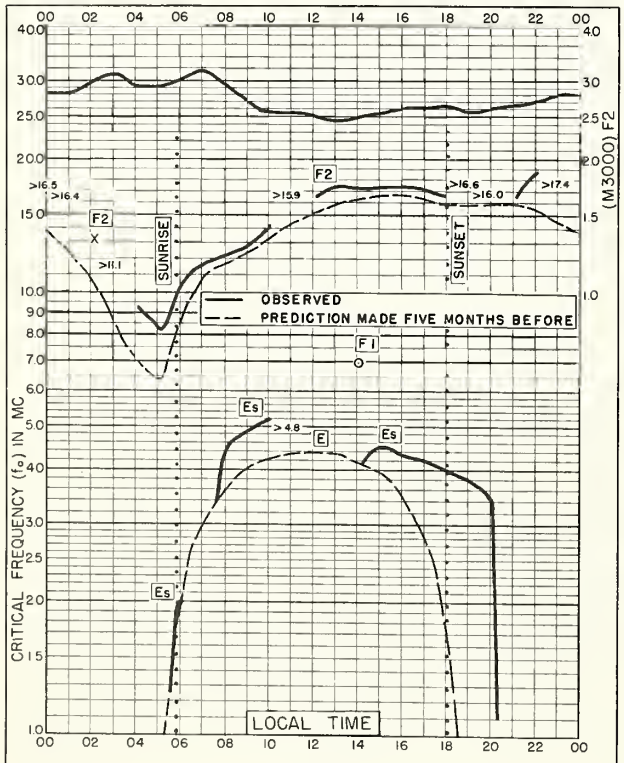


Fig. 102. FORMOSA, CHINA
25.0°N, 121.5°E SEPTEMBER 1958

NBS 503

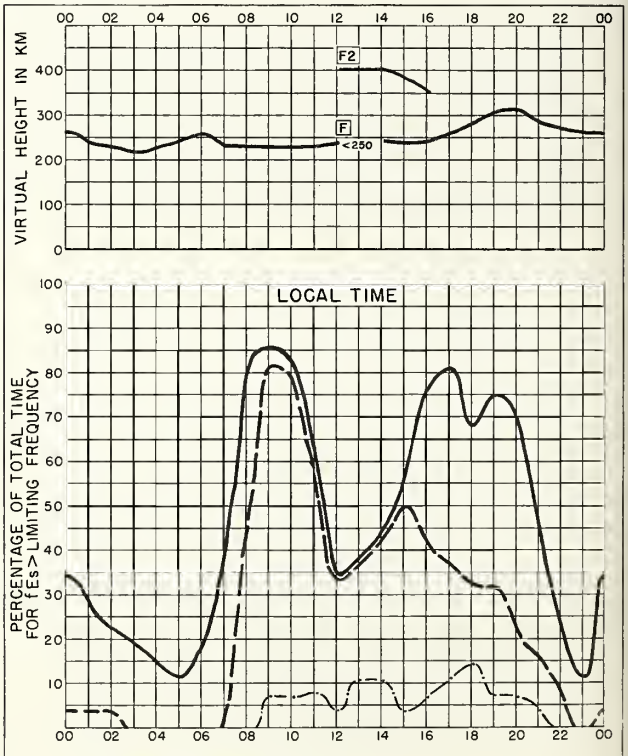


Fig. 103. FORMOSA, CHINA SEPTEMBER 1958

NBS 490

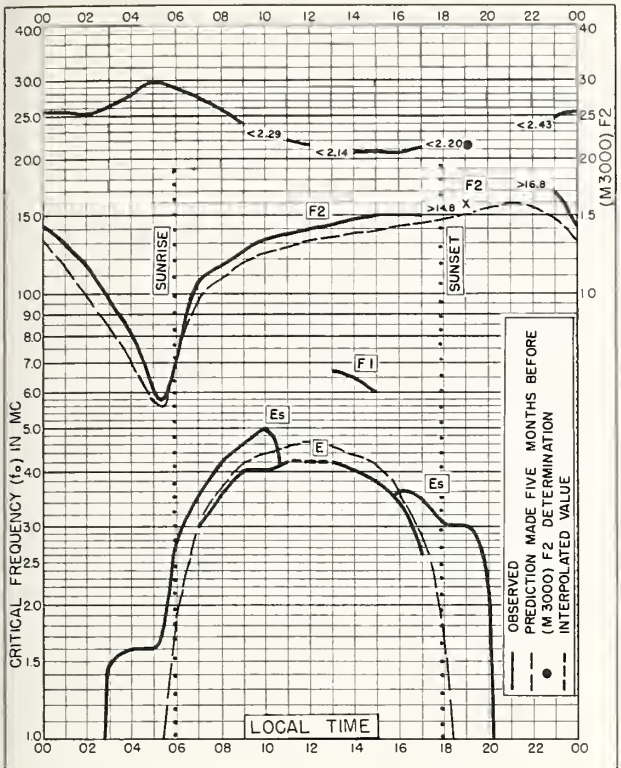


Fig. 104. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E SEPTEMBER 1958

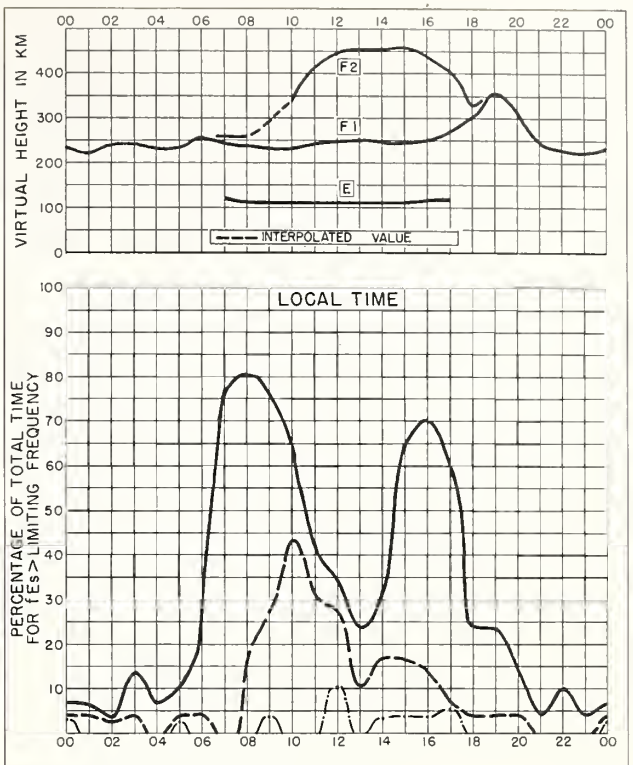


Fig. 105. LEOPOLDVILLE, BELGIAN CONGO SEPTEMBER 1958

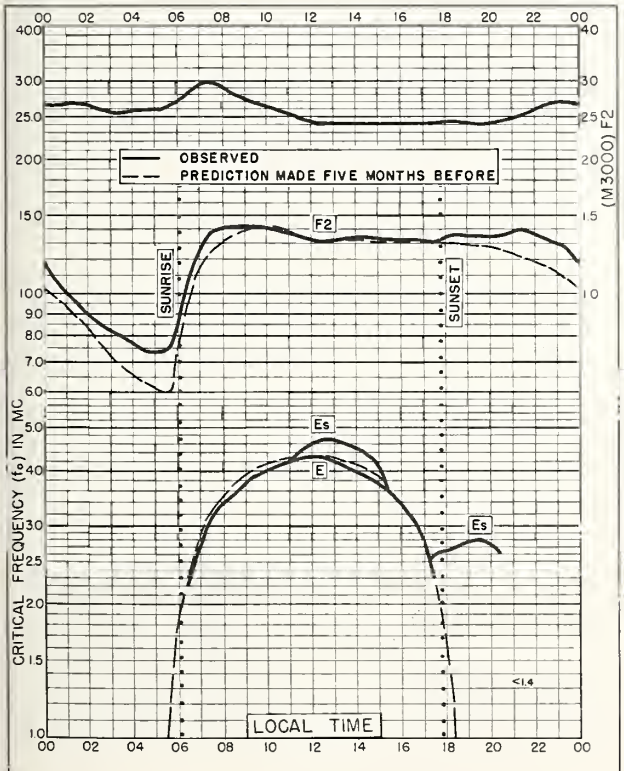


Fig. 106. RAROTONGA I.
21.2°S, 159.8°W SEPTEMBER 1958

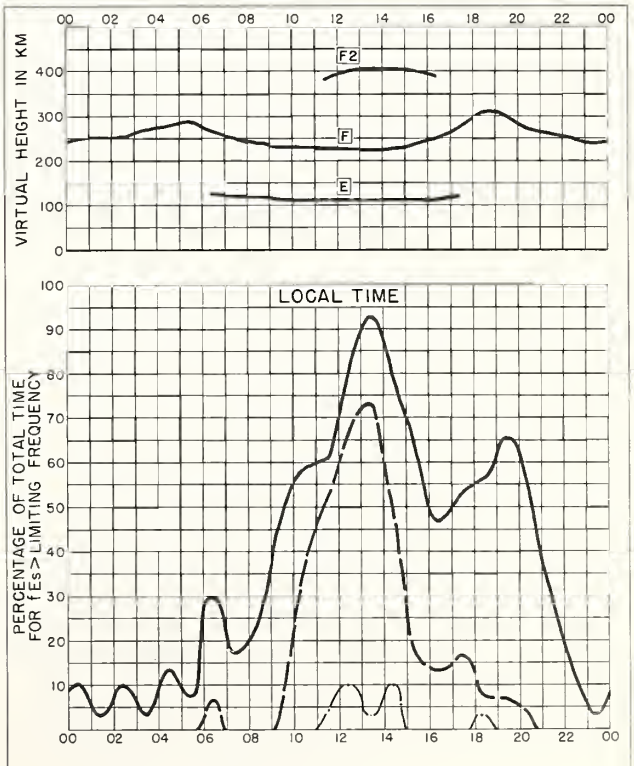


Fig. 107. RAROTONGA I. SEPTEMBER 1958

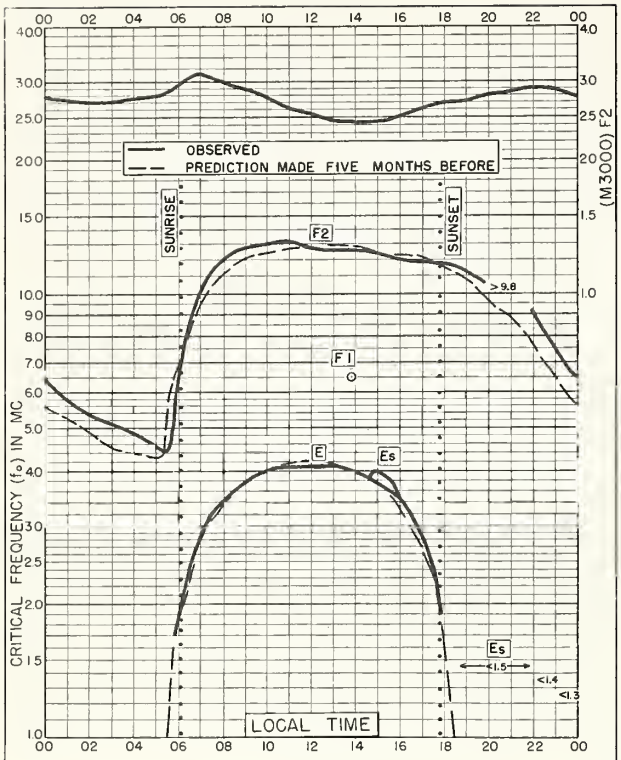
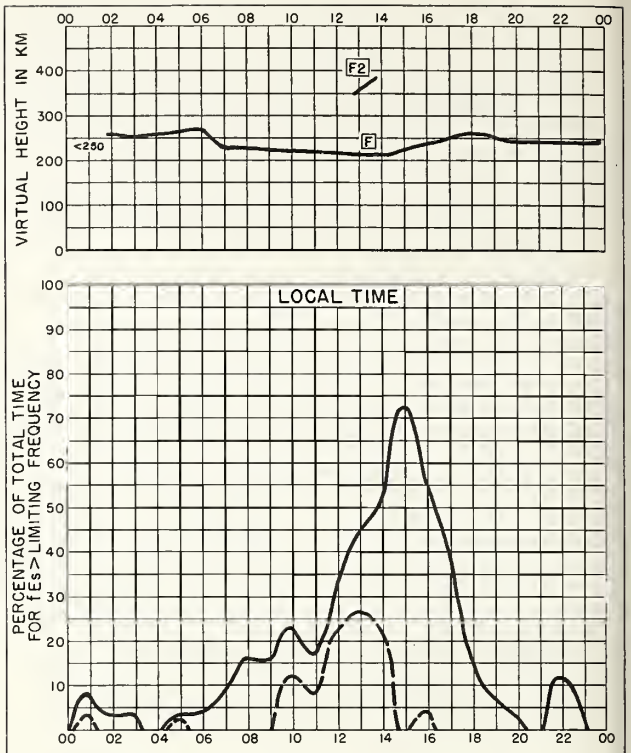


Fig. 108. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.0°E SEPTEMBER 1958

NBS 503



SEPTEMBER 1958

Fig. 109. JOHANNESBURG, UNION OF S. AFRICA

NBS 490

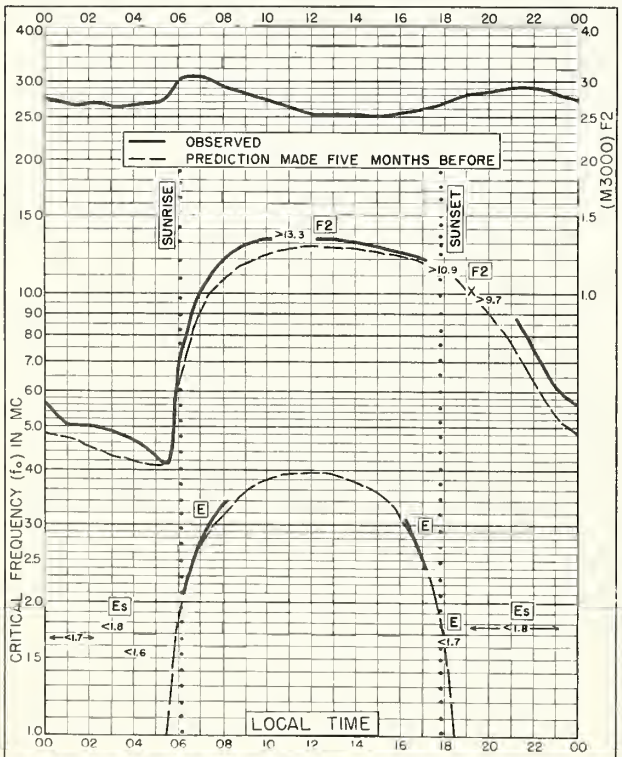
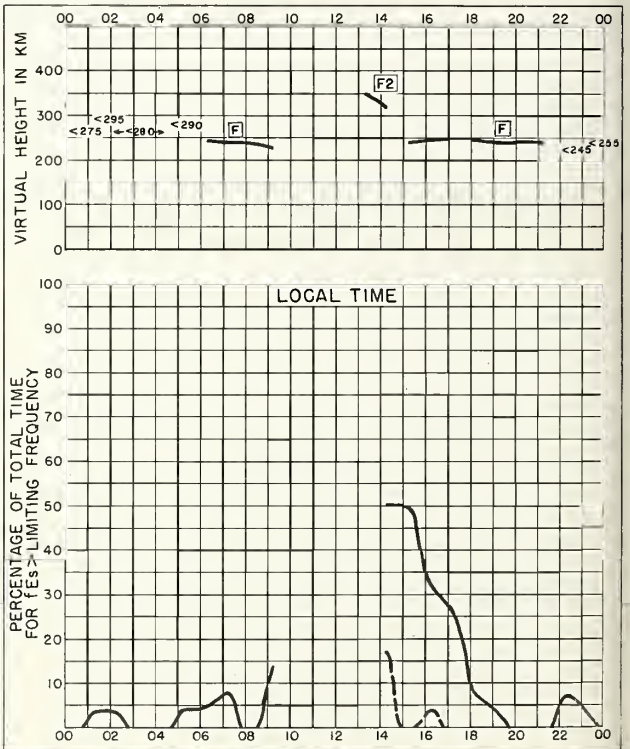


Fig. 110. CAPETOWN, UNION OF S. AFRICA
34.1°S, 18.3°E SEPTEMBER 1958

NBS 503



SEPTEMBER 1958

Fig. 111. CAPETOWN, UNION OF S. AFRICA

NBS 490

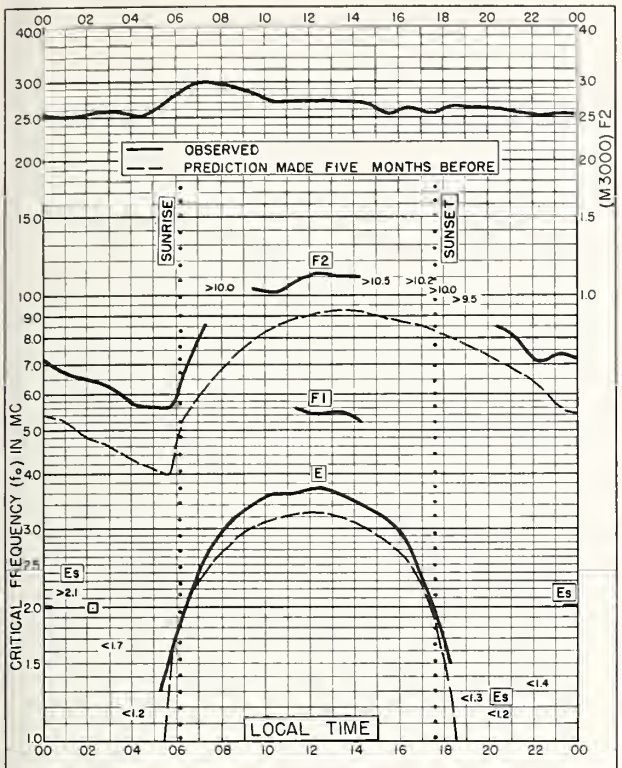


Fig. 112. CAMPBELL I.
52.5°S, 169.2°E SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

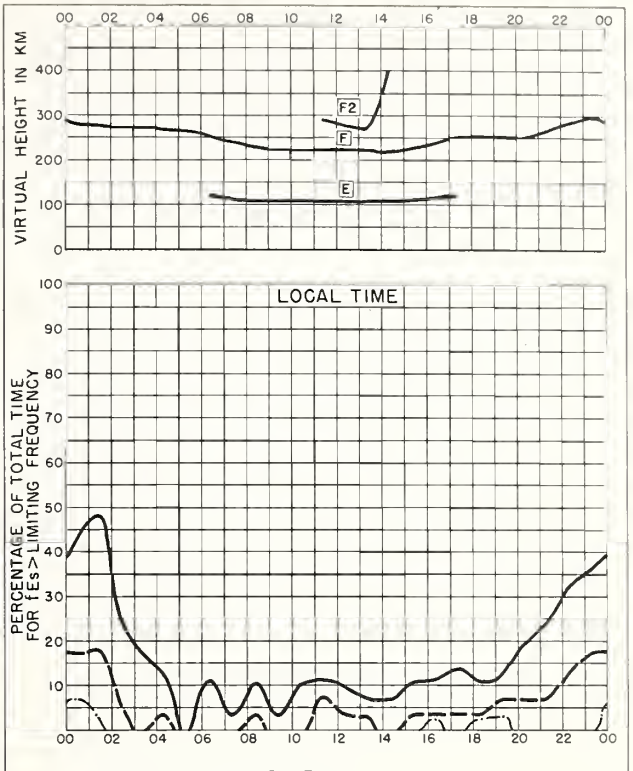


Fig. 113. CAMPBELL I. SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

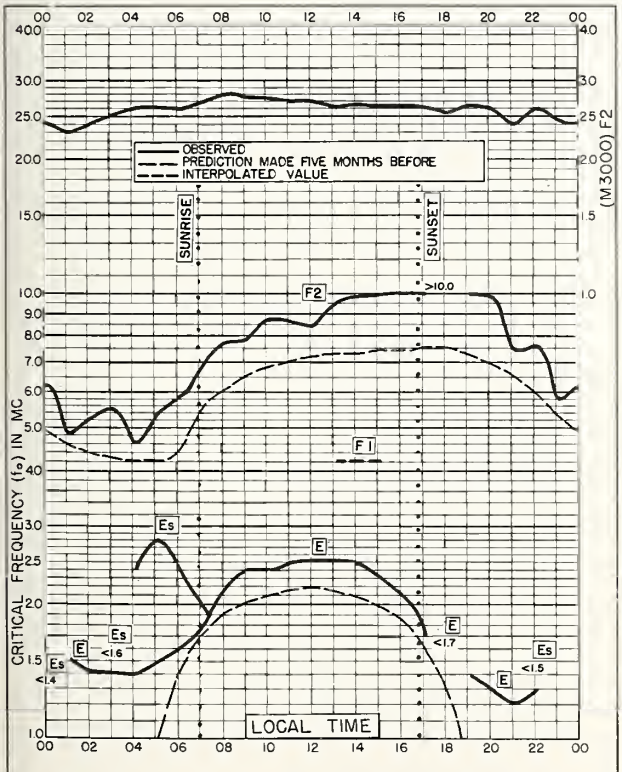


Fig. 114. SCOTT BASE
77.8°S, 166.8°E SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

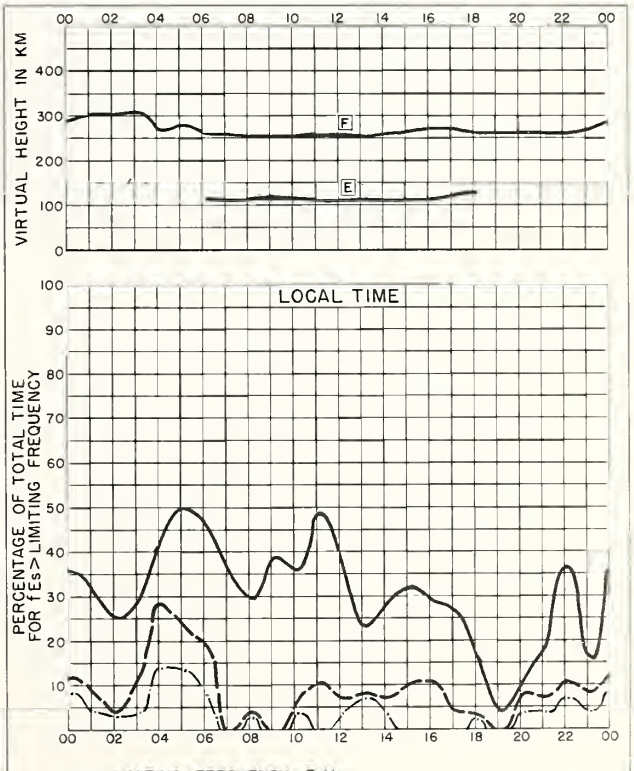


Fig. 115. SCOTT BASE SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

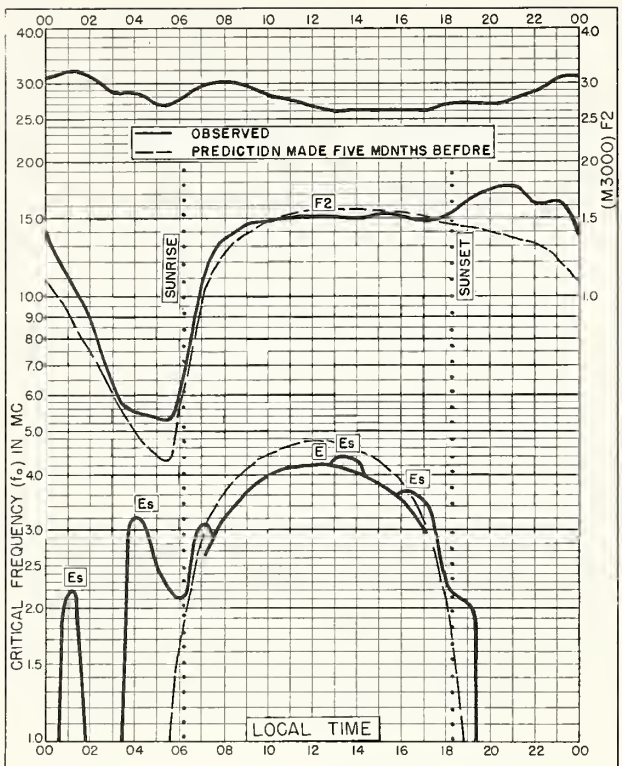


Fig. 116. BOGOTA, COLOMBIA
4.5°N, 74.2°W FEBRUARY 1958

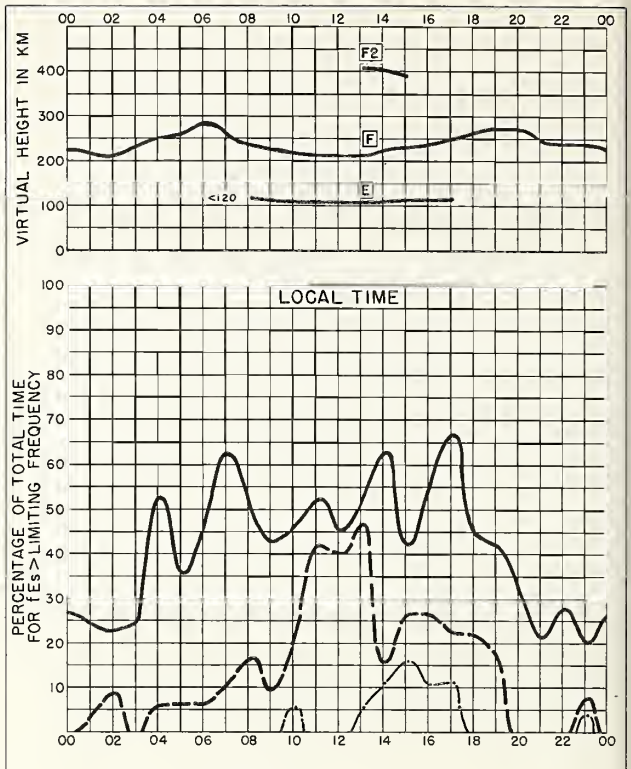


Fig. 117. BOGOTA, COLOMBIA FEBRUARY 1958

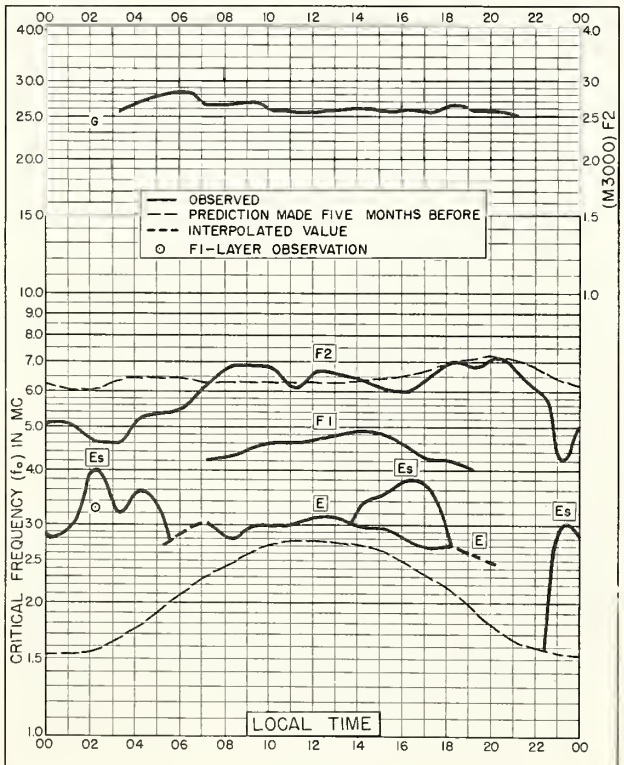


Fig. 118. LITTLE AMERICA
78.2°S, 162.2°W FEBRUARY 1958

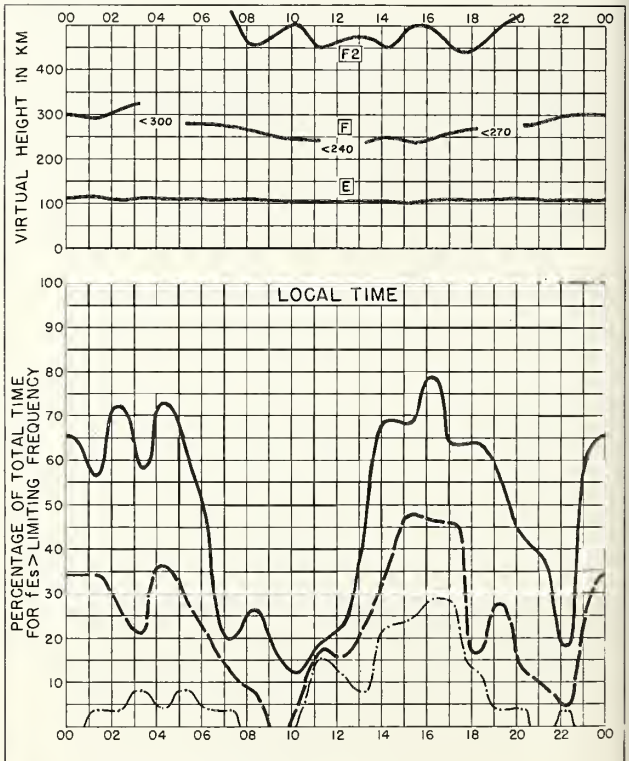


Fig. 119. LITTLE AMERICA FEBRUARY 1958

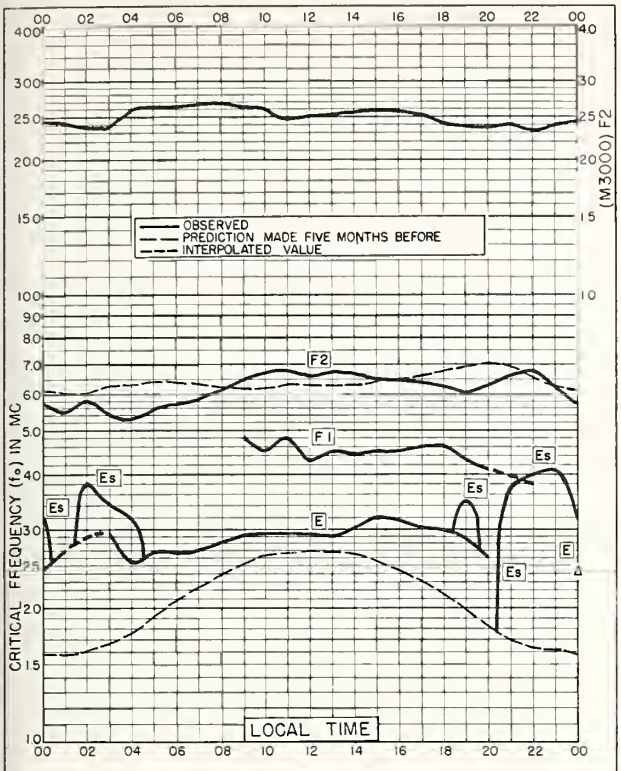


Fig. 120. BYRD STATION
80.0°S, 120.0°W FEBRUARY 1958

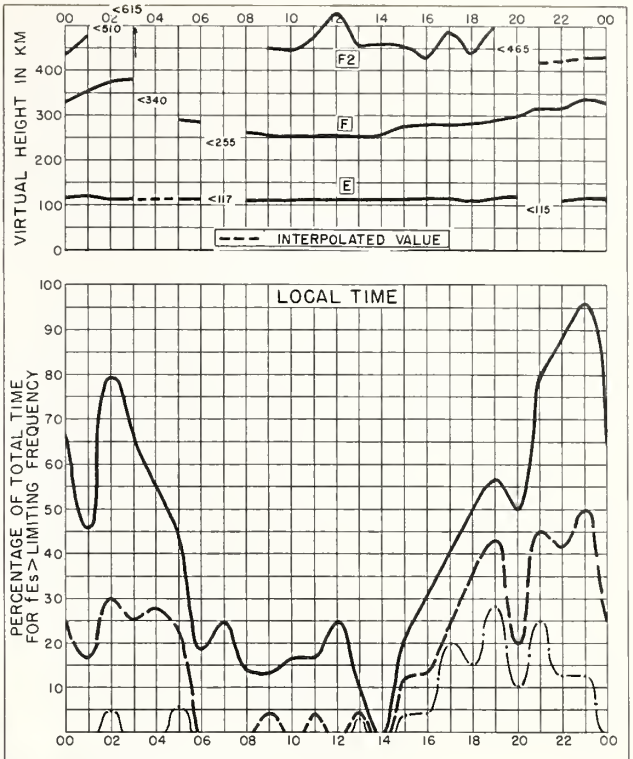


Fig. 121. BYRD STATION FEBRUARY 1958

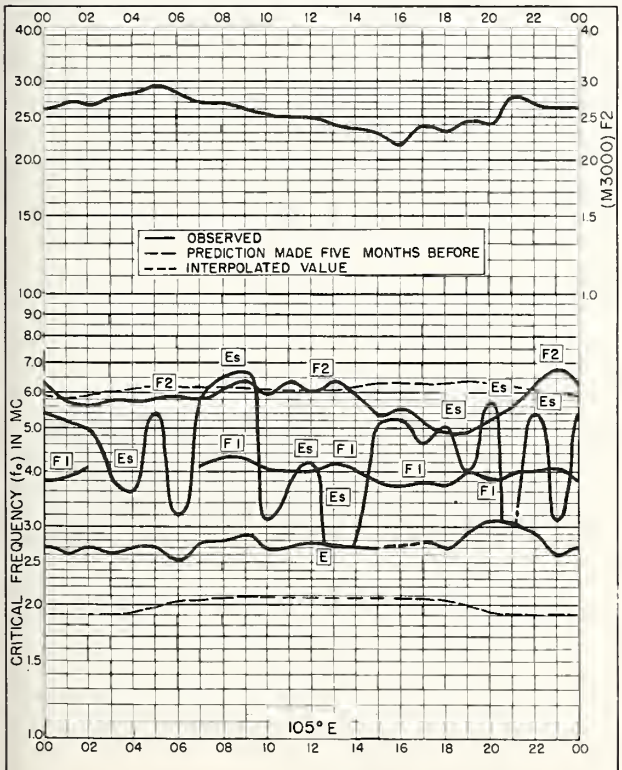


Fig. 122. POLE STATION
90.0°S FEBRUARY 1958

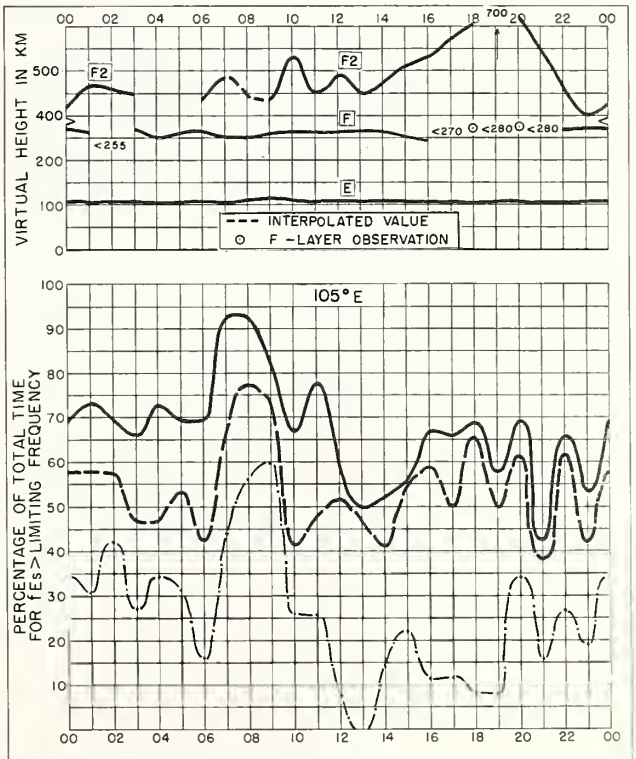


Fig. 123. POLE STATION FEBRUARY 1958

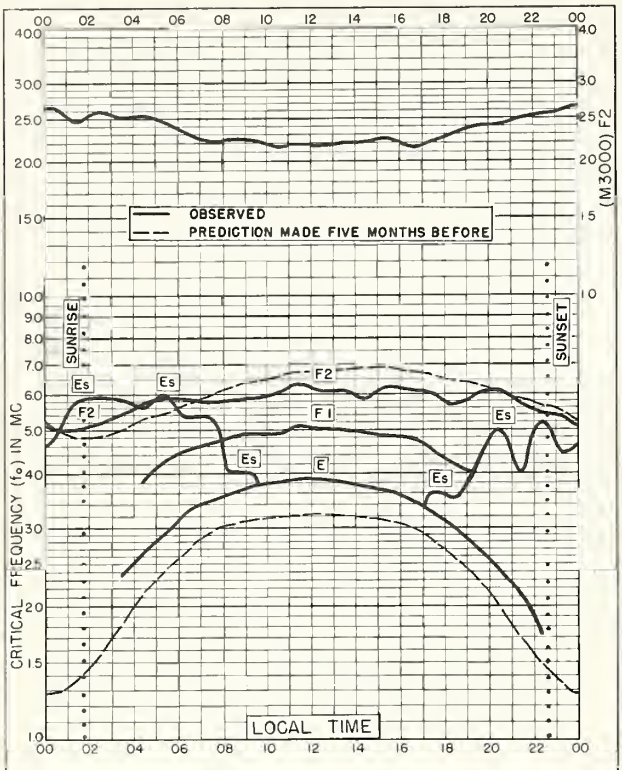


Fig. 124. WILKES STATION
66.2°S, 110.5°E JANUARY 1958

NBS 503

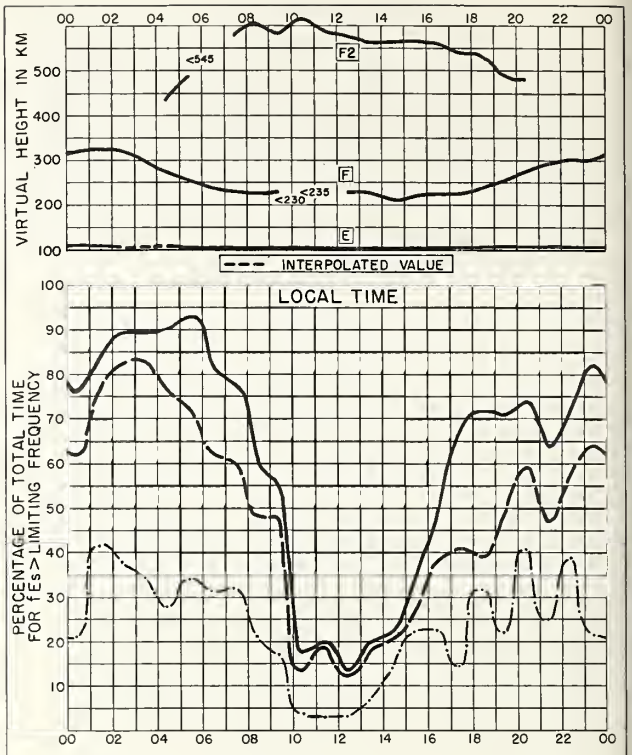


Fig. 125. WILKES STATION JANUARY 1958

NBS 490

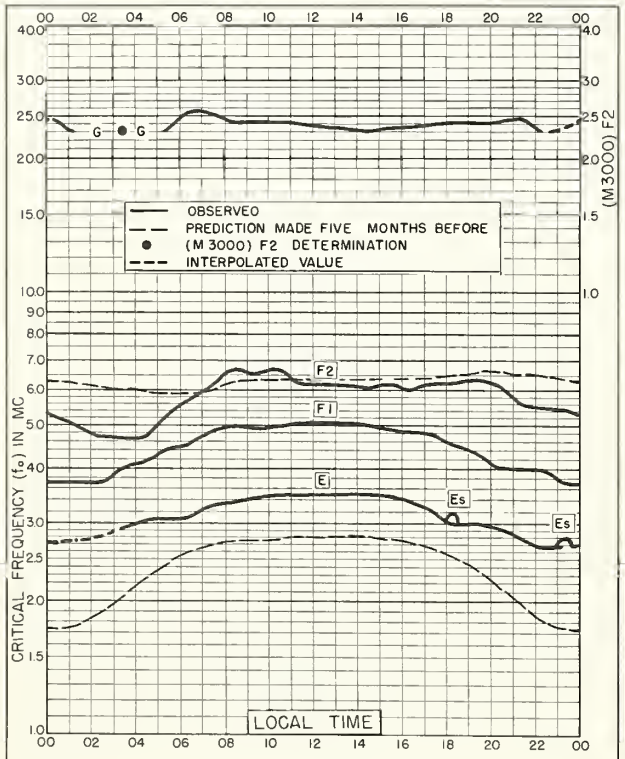


Fig. 126. LITTLE AMERICA
78.2°S, 162.2°W JANUARY 1958

NBS 503

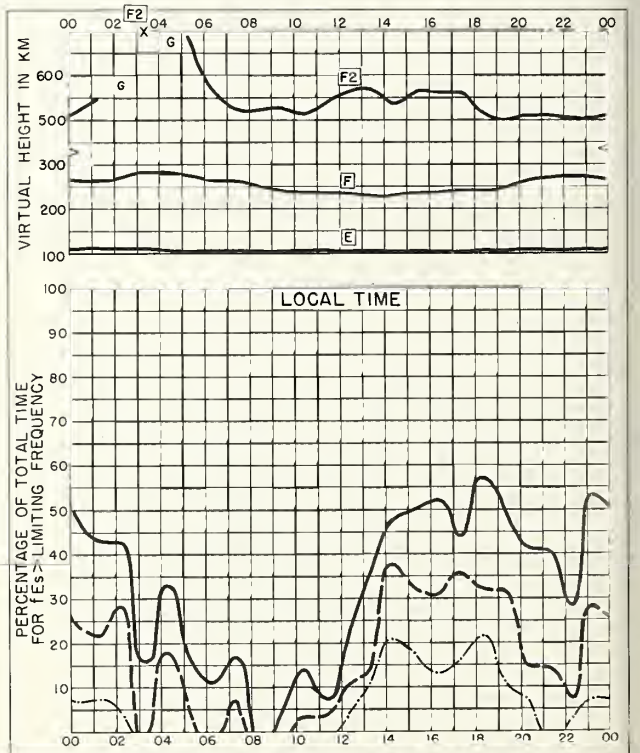


Fig. 127. LITTLE AMERICA JANUARY 1958

NBS 490

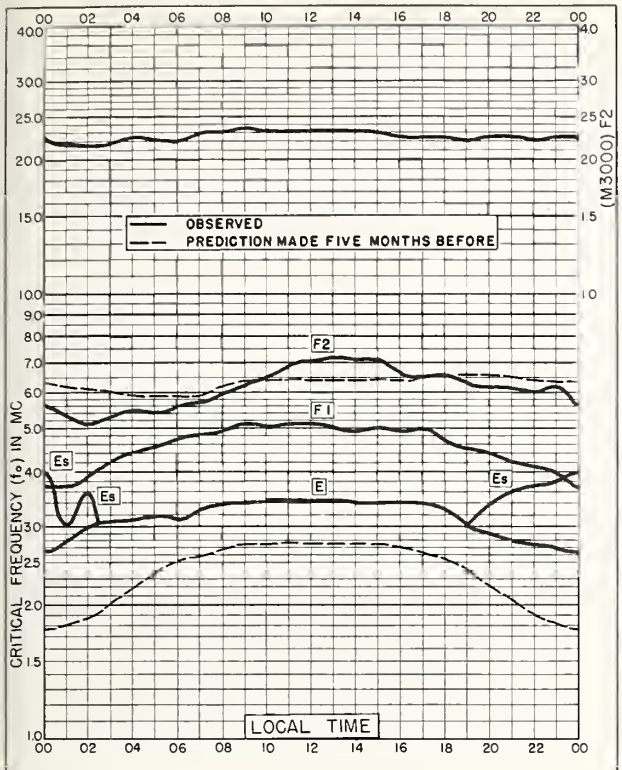


Fig. 128. BYRD STATION
80.0°S, 120.0°W JANUARY 1958

NBS 503

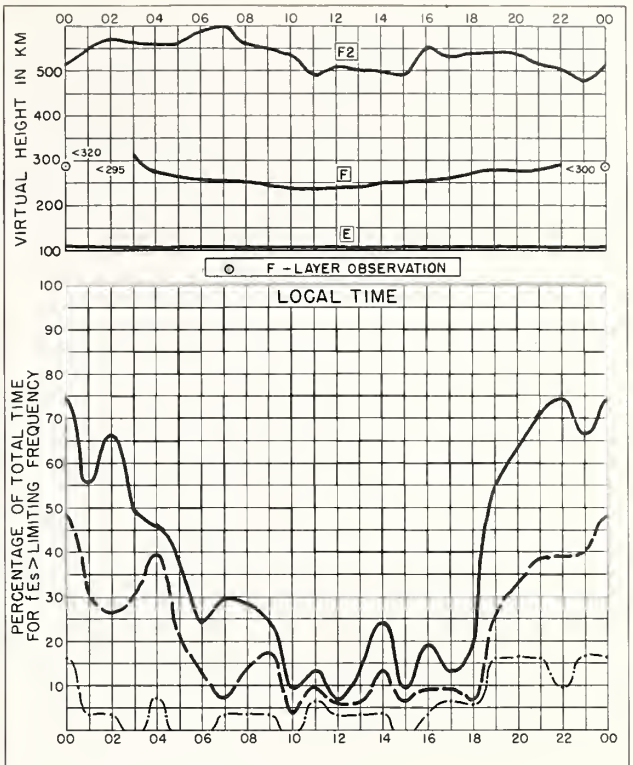


Fig. 129. BYRD STATION JANUARY 1958

NBS 490

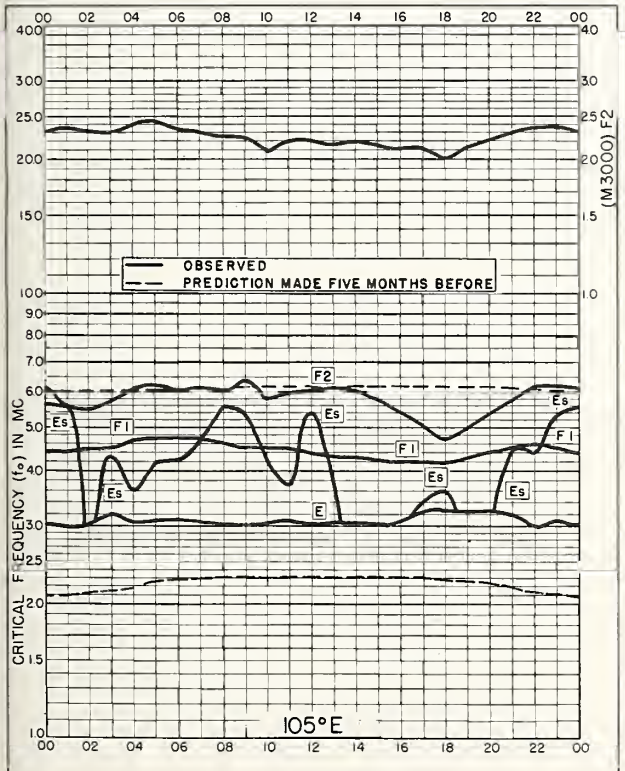


Fig. 130. POLE STATION
90.0°S JANUARY 1958

NBS 503

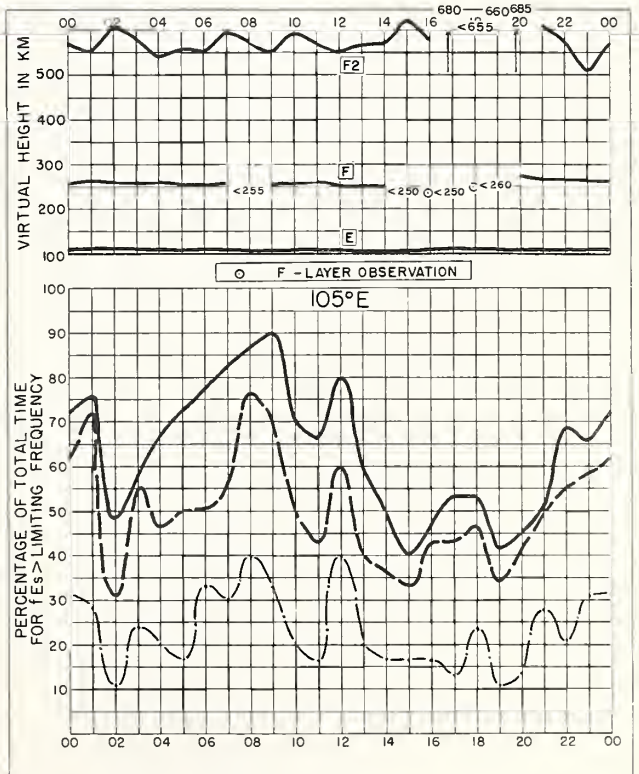


Fig. 131. POLE STATION JANUARY 1958

NBS 490

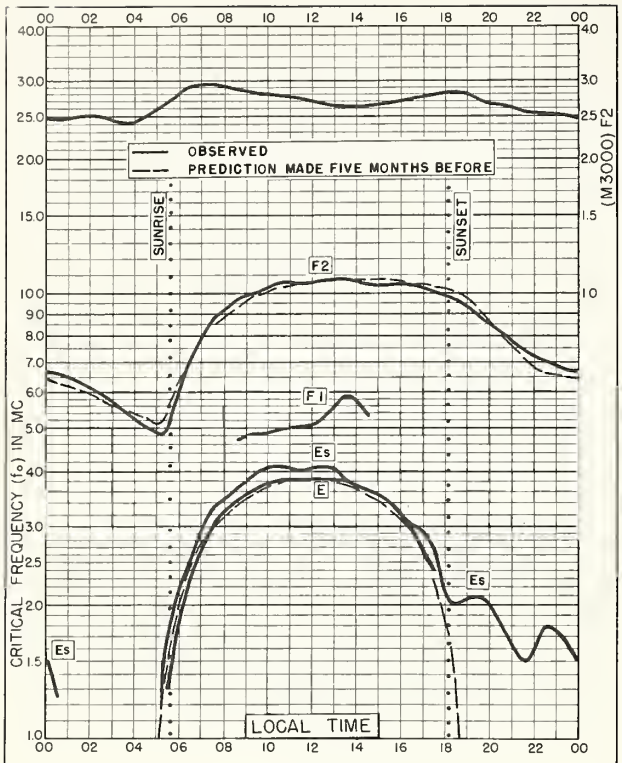


Fig. 132. FREIBURG, GERMANY
48.1°N, 7.6°E SEPTEMBER 1957

NBS 503

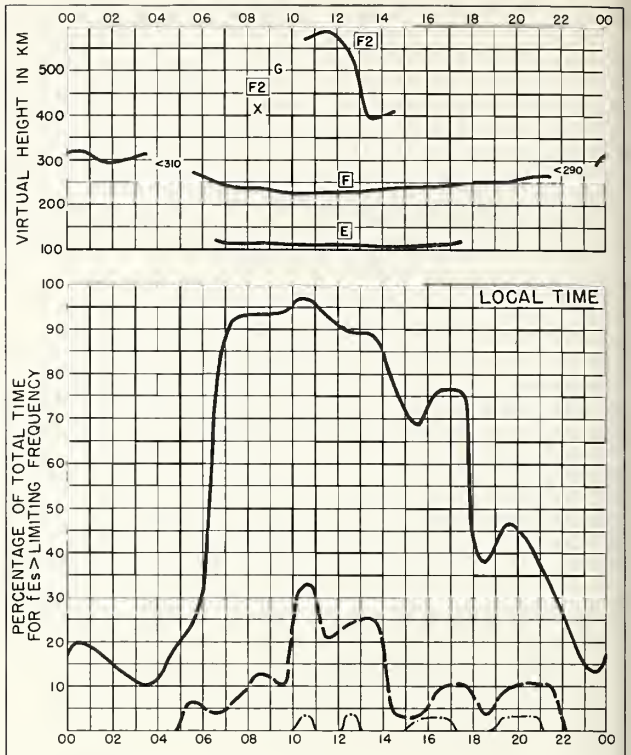


Fig. 133. FREIBURG, GERMANY SEPTEMBER 1957

NBS 490

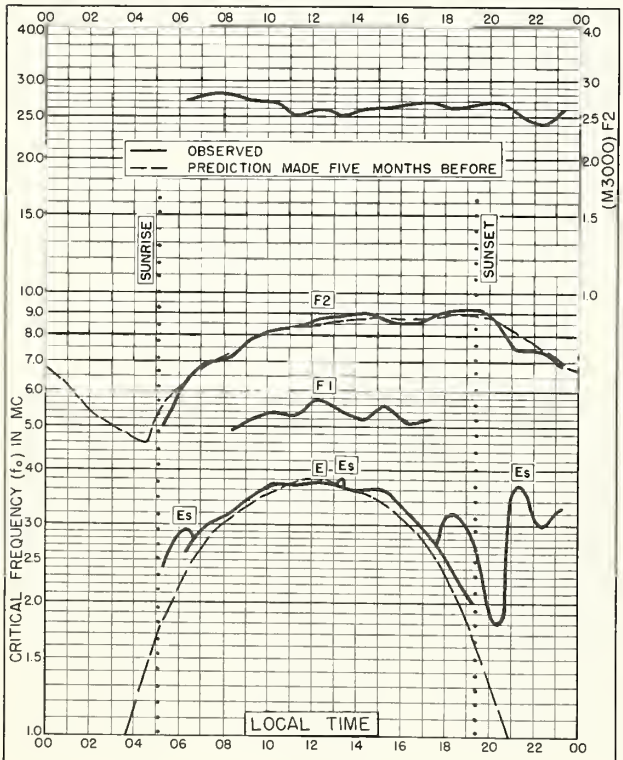


Fig. 134. CAMPBELL I.
52.5°S, 169.2°E FEBRUARY 1957

NBS 503

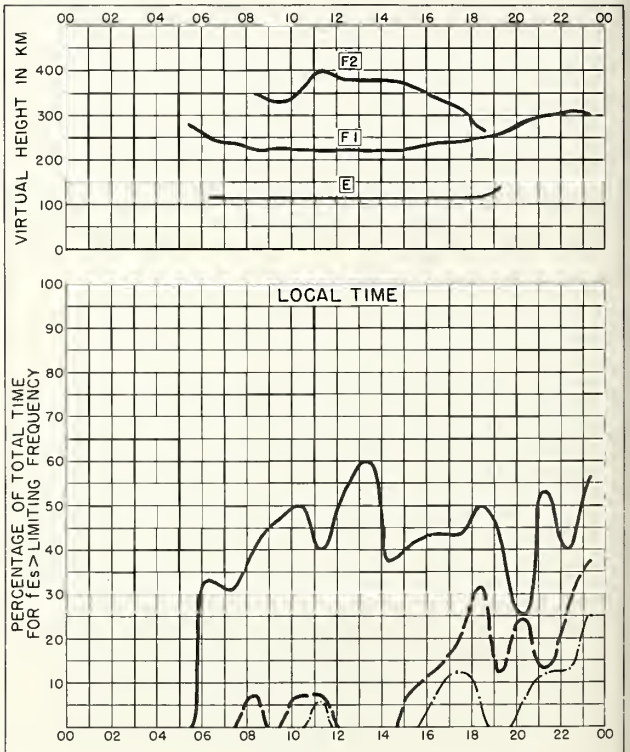


Fig. 135. CAMPBELL I. FEBRUARY 1957

NBS 490

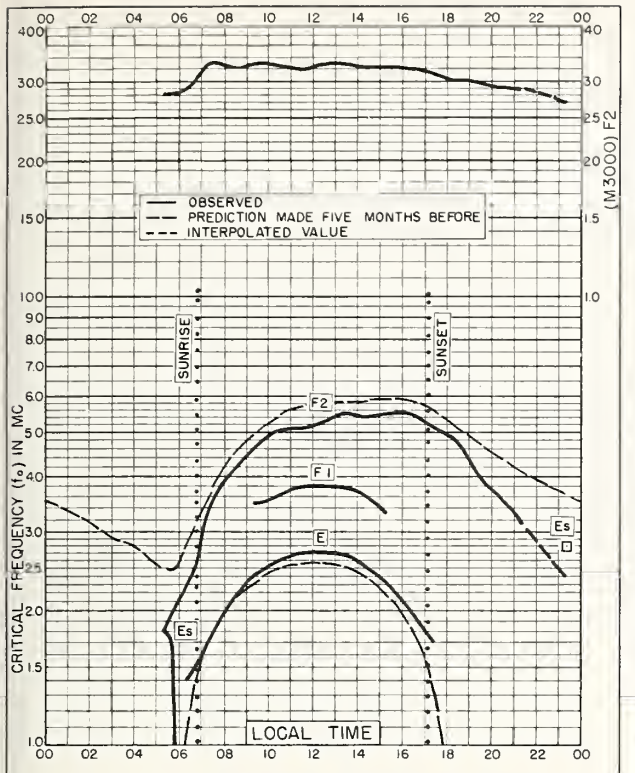


Fig. 136. CAMPBELL I.
52.5°S, 169.2°E APRIL 1953

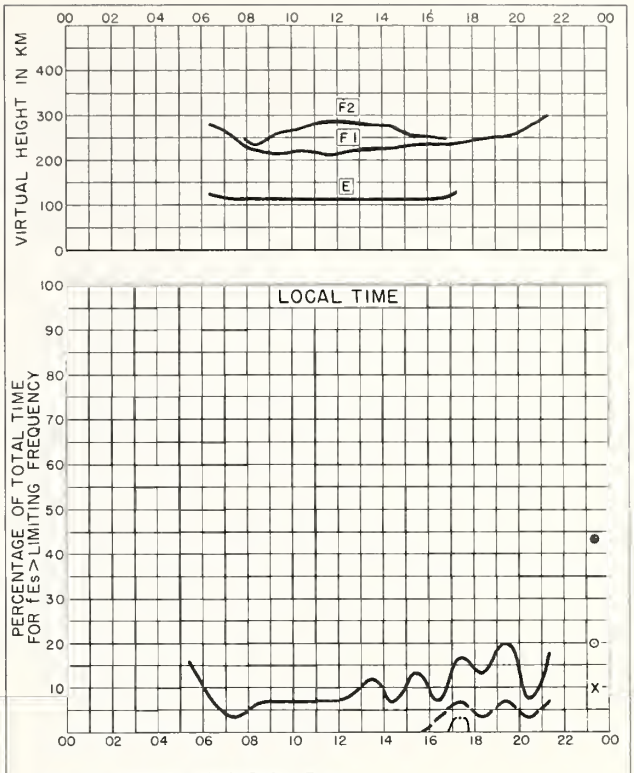


Fig. 137. CAMPBELL I. APRIL 1953

NBS 490

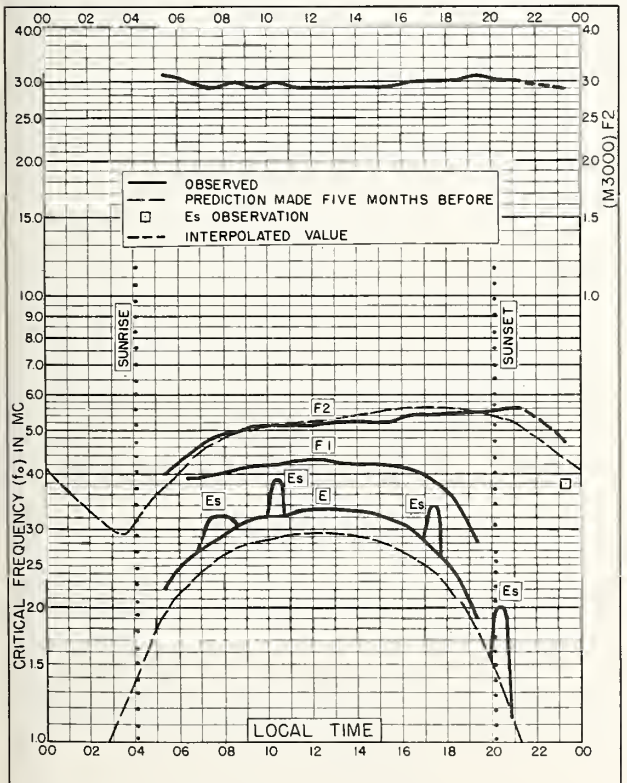


Fig. 138. CAMPBELL I.
52.5°S, 169.2°E JANUARY 1953

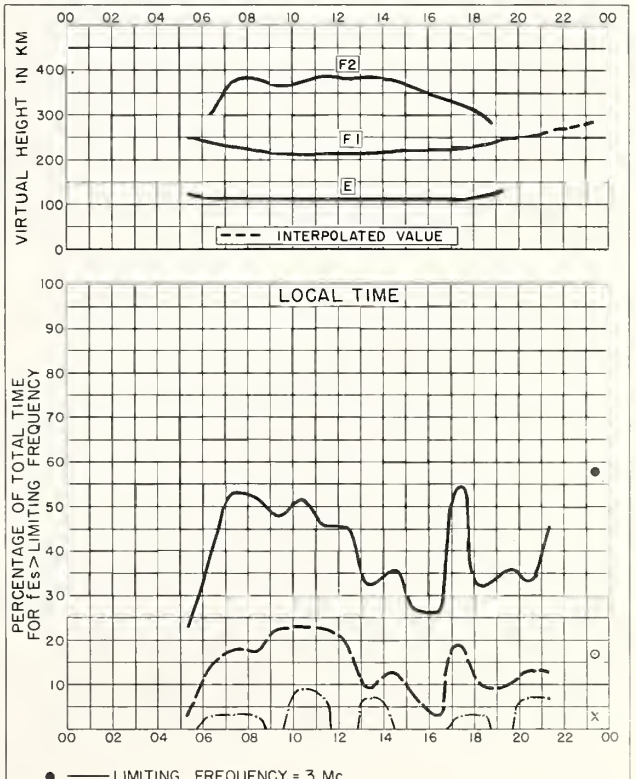


Fig. 139. CAMPBELL I. JANUARY 1953

NBS 490

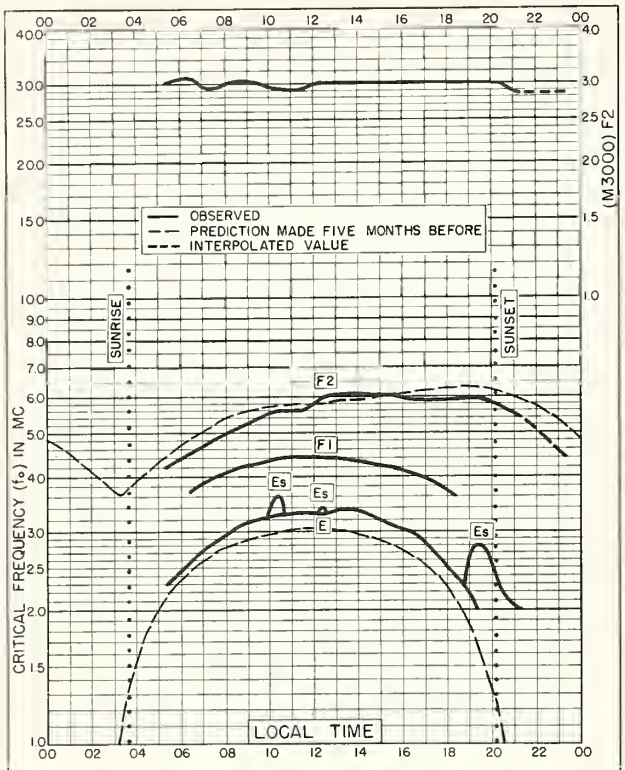


Fig. 140. CAMPBELL I.
52.5°S, 169.2°E DECEMBER 1952

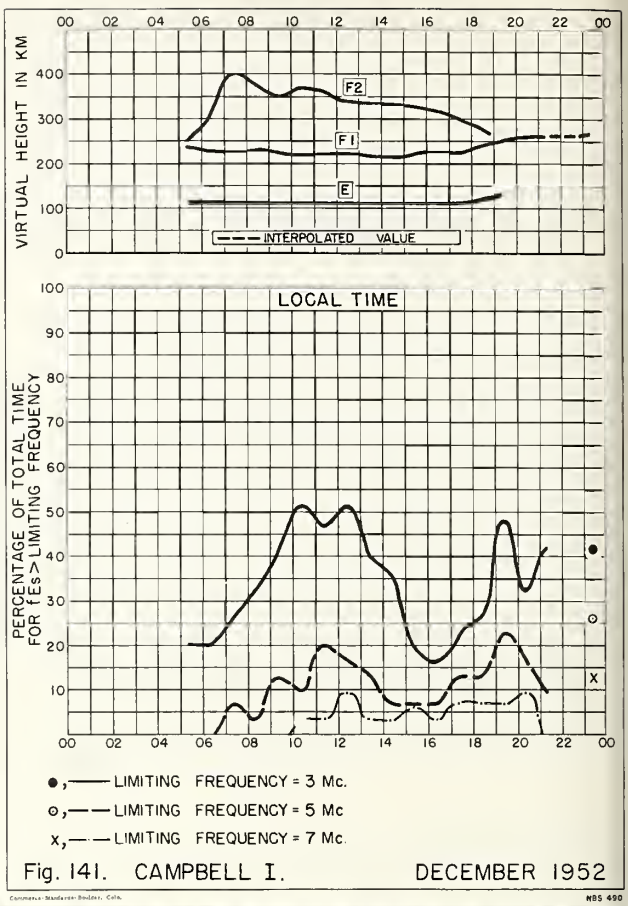


Fig. 141. CAMPBELL I. DECEMBER 1952

Commerce-Standards-Boulder, Colo. NBS 490

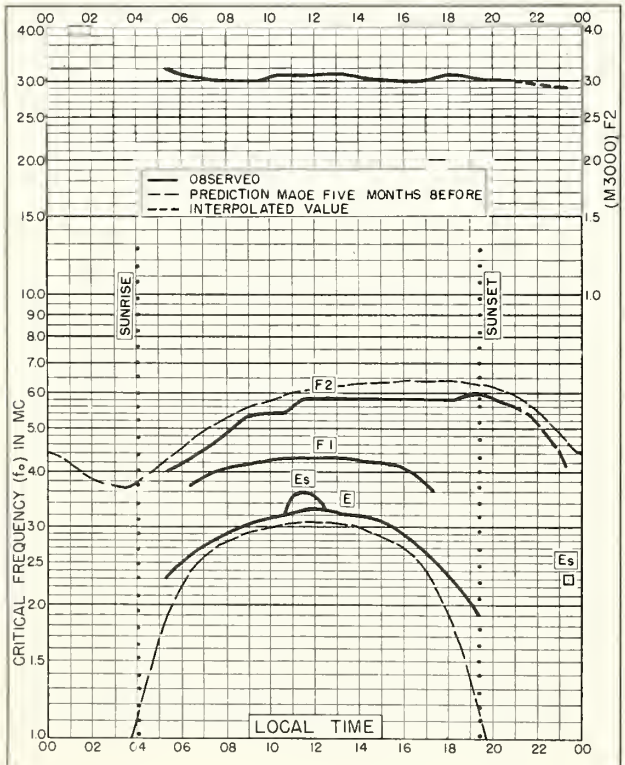


Fig. 142. CAMPBELL I.
52.5°S, 169.2°E NOVEMBER 1952

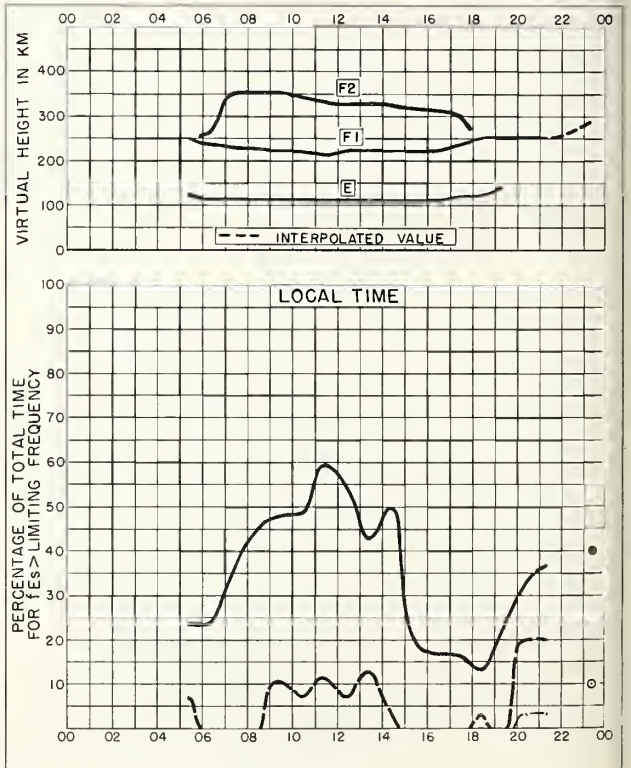


Fig. 143. CAMPBELL I. NOVEMBER 1952

Commerce-Standards-Boulder, Colo. NBS 490

Index of Tables and Graphs of Ionospheric Data

in CRPL-F180 (Part A)

Index (CRPL-F180 (Part A), continued)

Index (CRPL-F180 (Part A), concluded)

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